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MEMORY TRAINING:

A PRACTICAL COURSE

BY

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Now, what helps it good bookes to reade,
or noble stories large ;

Excepte a perfect memorie
do take thereof the charge ?

What profits it most worthy thing
to see or else to heare :

If that the same come in at the one
and out at the other eare ?

Therefore briefly thus to conclude
take Memorie away :

What is a man ? What can hee doe ?
or else what can hee say ?

Restore the same to him again,
in full integritie ;

It will him soone reduce in deede
to all felicitie.

(The Castel of Memorie, 1573)



CHAPTER I

METHODS OF MEMORY TRAINING

WE are familiar, in Theosophical circles, with the idea of the dual nature of the human mind, which we sometimes speak of as higher and lower *manas*, each of which works in matter suited to its expression. "In incarnation, *manas* becomes dual," said Madame Blavatsky, the ever-to-be-revered founder of our Theosophical Society. In other words, when mind comes into contact with the world of concrete objects, it develops the faculty of imagination—that kind of thinking in which pictures and symbols arrange and re-arrange themselves before our mental vision—in addition to its own proper faculty of understanding and comparing the relations between things. These two, again, are sometimes spoken of as abstract thought, the work of higher *manas*, and concrete thought, the work of lower *manas*.

Now, memory appears to subsist in each of these, so that we have two general methods of remembering, one by imagination, the other by reasoning; and when we make a survey of the literature which deals with the practical improvement of the human memory, from

Roman times down to the present day, we find that there also this dual aspect of the subject appears, some writers advocating methods which facilitate and vivify imaginative processes, and others presenting ways of intensifying the memory of the abstract mind. Here we advocate a combination of both these methods, never before presented together, so far as we are aware, in any single work.

Though these two methods are quite distinct, yet they appear to have evolved in succession. Occult investigations have revealed to us the fact that in the course of human evolution our centre of consciousness has been rising slowly from the lower to the higher type of mental process. In the far ancient days there was undoubtedly great learning, but knowledge then consisted of a vast mass of information about particular things, and all science appeared to be a kind of magic by which many things could be done, though men did not quite know how; but now knowledge consists of far-reaching generalisations built upon perception of the abstract relationship between things; in other words, a knowledge of principles applicable to facts.

Thus we find that the memory-devices of Greece and Rome and Middle-Age Europe, even down to a hundred years ago, aimed at presenting ideas vividly in the imagination by exaggerating, distorting or symbolising them, by putting incongruous images together—in short, by making them striking in one way or another. During the last hundred years, however, memory-methods have laid far more stress upon comparing unfamiliar things with familiar ones, and generally upon the use

of the reasoning faculty with its power of comparison and its perception of causal relationship.

We do not discard the imagination method, as many modern writers have done. Certainly it represents an earlier development, yet it need not be despised on that account. Our lower minds, indeed, still need much exercise and development; the imagination ought to be vivid and rapid, though under the control of the higher mind; and in fact there are some feats of memory, as we shall show in later chapters, which appear impossible without the aid of the imagination method.

Therefore, in this system of memory training, we have an intimate blend of the two methods, together with the art of forgetting, a truly Theosophical art, because it is in complete accord with the principles of our mental life. Probably few readers will at first recognise the importance in memory work of putting things, not out of mind, but out of sight within the mind. An effort to remember a lot of things at once often causes loss of memory, especially when it is accompanied by anxiety, doubt, fear, or any kind of mental agitation. We insist, therefore, from first to last, upon the necessity of clearly observing and comparing the fact to be remembered and then putting it away in the mind and forgetting all about it until it is required again.

There are four precepts which apply to every act of memory: first, the thing to be remembered must be observed carefully and thoroughly understood: secondly, it must be compared with something already well known, and assigned its place beside it in the mind; thirdly, it must be repeated attentively a few

times ; and fourthly, it must be completely forgotten when the mind turns to something else. Those who undertake the exercises detailed in the following chapters will do well to remember these four rules and apply them rigorously throughout the whole course.

CHAPTER II

TO AWAKEN THE IMAGINATION

WE shall begin our course by a series of exercises intended to train the mind to form, with ease and rapidly, full and vivid mental pictures or idea-images. When a concrete object is known, it is reproduced within the mind, which is the instrument of knowledge ; and the more nearly the image approximates to the object, the truer is the knowledge that it presents. In practice, such an image is to some extent distorted, because we instinctively think of the object in its relation to ourselves, as it appears and feels to us. In all cases we should try, therefore, to think of the object from every point of view, not mixing it with our attitude towards it. For example, if I think of a sovereign, I should not merely imagine the weight of it, the colour, and the device of S. George and the dragon, but also at the same time the portrait of King George on the other side, the milled edges and the thickness of the coin. Thus, only by the elimination of self can we even see or imagine a simple thing as it is ; and truly our art of memory is most Theosophical in this respect, that in the pursuit of it we must at the

outset avoid thought of self and try to view things from their universal aspect.

For our purpose we will divide idea-images into four varieties: simple concrete, complex concrete, simple abstract and complex abstract. It is with the first of these classes that we deal in this chapter.

Simple concrete ideas are the ordinary small objects of life, such as an orange, a pen, a cow, a book, a hat, a chair, and all the simple sensations of sound, form, colour, weight, temperature, taste, smell and feeling.

Complex concrete ideas are large multiples of simple ones or associations of a variety of them, such as a town, a family, a garden, ants, sand, provisions, furniture, clothing, the battle of Waterloo, Australasia.

Simple abstract ideas are those which belong to a variety of concrete ideas, but do not denote any one of them in particular, such as colour, weight, mass, heat, health, position, magnitude or number, and the like.

Complex abstract ideas are combinations of simple ones, such as majesty, splendour, benevolence, fate, sensation.

The difference between simple and complex ideas is one of degree, not of kind. What is simple to one person may appear complex to another. A man with a strong imagination is able to grip a complex idea as easily as another may hold a simpler one.

The first step in the process of memory training is to practise reproducing simple concrete objects in the mind, and this must be done with each sense in turn. If a student has been observing flowers, let us say, he

should practise until he can, in imagination, both see and smell a flower with his eyes closed and the object absent. He may close his eyes, fix his attention on the olfactory organ, and reproduce the odour of the flower by an effort of will. It is not enough simply to name it and remember the name. He must positively be able to reproduce the thing in imagination, not only as seen, but also as felt and heard and in every way sensed.

In the following exercises it is not enough to repeat words and permit the mind to pass on with a mere shadow of thought. At least a momentary effort should always be made, not only in these exercises but also when reading, to imagine the thing which we are considering. In this process of imagination some persons find themselves readily able to visualise, to call up before the mind actually visible, audible and tangible images, while others are only able to imagine, without positively seeing, their thought-images; yet these latter also will find that the ability to visualise develops and grows as they persevere in the practice. It is well to give half-an-hour to an hour each day to the exercises, and continue them with unfailing regularity until the course is complete, and the student would be well-advised also to keep a full diary of his work.

EXERCISE 1. *First Week.* Obtain a number of prints or drawings of simple geometrical figures. Take one of these, say a five-pointed star, look at it carefully, close the eyes, and imagine its form and size. When the image is clear, proportionate and steady in the imagination, look at the drawing again and note any differences between it and the original. Once more close the

eyes and make the image, and repeat the process until you are satisfied that you can imagine the form accurately and strongly. Repeat the practice with other forms, gradually increasing in complexity.

EXERCISE 2. *Second and Third Weeks.* Repeat the practice of last week, but use simple objects, such as a coin, a key, or a pen. Try to imagine them from both sides at once, but first imagining one side, then the other, and alternating these images rapidly until they blend. Avoid thinking of your own affairs, your success or failure, or your relation to the object.

EXERCISE 3. *Second Week.* Obtain a number of coloured surfaces; the covers of books will do. Observe a colour attentively; then try to imagine it. Repeat the process with twenty or thirty different colours and shades.

EXERCISE 4. *Third Week.* Listen intently to a particular sound. Reproduce it within the mind. Repeat the experiment with different sounds and notes, until you can call them up faithfully in imagination. Try to hear them in your ears.

EXERCISE 5. *Third Week.* Touch various objects, rough, smooth, greasy, metallic, etc., with the hands, forehead, cheek and other parts of the body. Observe the sensations carefully, and reproduce them exactly. Repeat this with hot and cold things, and also with the sensations of weight derived from objects held in the hands.

EXERCISE 6. *Fourth Week.* Close your eyes and imagine yourself to be in a large room or small theatre, sitting in the auditorium and facing the proscenium, which

should be like a room, barely furnished. Now think of some simple and familiar objects, such as a table and a clock. Imagine them placed in the proscenium, noting carefully their proper position, size, shape, colour, motion and sound, if any. Stand the table in the middle of the room, and fix the clock upon the wall. Then imagine an orange on the table. Picture it as clearly as possible, once more noting its position, size, shape and colour. Now go up into the proscenium, stand by the table, take up the orange, feel it, smell it, cut it open and taste it. Try to *realise* the object, to see, hear, feel, taste and smell it as if it were actually present. Get every possible sensation out of the process, and try *not* to think in words, nor to name the things or the sensations. Each thing is a bundle of sensations, and imagination will enable the mind to realise it as such.

It may be necessary for some at first to prompt their thought by words. In this case, questions about the object may be asked, as it were, in words, but should be *answered in images*. Each point should be dealt with deliberately, without hurry but not lazily, and quite decisively. The thought should not be lumpy ore, but pure metal clean cut to shape. A table of questions may be drawn up by the experimenter somewhat on the following plan : As regards sight, what is the outline, form, shape, colour, size, quantity, position and motion of the object ; as regards sound, is it soft or loud, high or low in pitch, and what is its timbre ; as regards feeling, is it rough, smooth, hard, soft, hot, cold, heavy, light ; as regards taste and smell, is it salty, sweet,

sour, pungent, acid ; and finally, among these qualities of the object, which are the most prominent ?

The value of the proscenium is that it enables you to get the object by itself, isolated from many other things, and the simple pretext of stepping into the proscenium is a wonderful aid to the concentration necessary for successful imagination.

After this practice has been followed it will be found to be an easy matter when reading or thinking about things, or learning them, to tick them off mentally by definite images, or, in other words, to *arrest the attention* upon each thing in turn and only one at a time. The process may seem to be a slow one when a description of it is read, but it becomes quite rapid after a little practice.

CHAPTER III

TO REMEMBER A SERIES OF THINGS

IF for a moment you fix your attention upon an idea you will at once see that it is by no means isolated, but is bristling in every direction with other ideas. As you hold it before your mental gaze, you will find that the mind automatically passes from it to one of these others that ray from it or are associated with it. This ray now grows, while the original idea diminishes, until the ray becomes the main idea, only to give way to another in its turn. Thus the whole content of the inner world may be regarded as one vast mass of inter-related ideas through which our thought threads its way from one to another. A second glance, however, will show that the ideas are inter-related in certain definite ways, that the stream of thought travels along the rays, not in a haphazard manner, but by way of well marked-out tracks.

Now, in finding our way about the outer world from one place to another we have three particular guides. We may reach our goal by fixing our eyes on a distant spire and gradually working towards it, overcoming or circumventing such obstacles as we may find in our

path ; secondly, we may follow out a well-marked road, trusting that it will take us to the place we wish to reach ; thirdly, we may take note of a succession of landmarks, and proceed from point to point with their aid. In a well laid out country all these are amply provided.

These things are provided in the world of the mind, as well as in the outer world. The man of orderly and well-appointed mind finds himself living in a pleasant, prosperous country with well-kept roads, well-stocked lands and smiling gardens, whether his range be small or large. Another may live in a barren wilderness or jungle twenty times as large, but to move from point to point must cross the arid thirsty wastes of useless knowledge, scramble over the broken ground of mental rubbish, wade through the pestiferous marshes of ill-associated thoughts or force his painful way through the tangled undergrowth of confused purposes and ideas. It is, of course, largely these ill-associations that are responsible for bad memories, for when they are numerous the roads and tracks are almost obliterated, for there are roads in the world of thoughts and ideas as definite as in the world of sense, and these are filled with objects of various sorts, good and bad.

But in the study and the cultivation of memory we are not concerned with the moral or intellectual aspect of ideas ; they may have been reached as the result of direct observation or of inference, or upon the testimony of others ; they may be true ideas, corresponding relatively to the relative facts which they represent, or misconceptions of true things, as when one in the dusk mistakes a rope for a snake or a post for a man,

or mere fancy, as if one should think of a man with ten heads, of the horns of a hare or the beard of a woman. Perception may be correct or incorrect; inference logically valid or fallacious; testimony true or false; but with all these memory as such has no interest. The discussion of them belongs to the regions of Psychology, Logic and Ethics.

But whatever may be the nature of the ideas that you may have, you will always find that certain of them stand out as guides for tracing out others, and that the train of thought tends to follow familiar tracks. These tracks, indeed, are natural to the world of thought, and if you learn their nature and their signs or landmarks you can with ease and certainty find your way about the world of thought in which you live.

There is no road without landmarks—at this turning an inn, at that a stout and ancient oak, at another a tinkling rivulet, at the next a farm-house with a barking dog, and ruddy children playing in the cobbled yard. In the sequence of memories also the great roads have their landmarks, ideas, each of which leads on to the next and suggests it, and with their aid the train of thought can almost always find its way with certainty along the roads and paths which it has trodden before. At the age of six I had a severe illness, at twelve my father removed his home to a new house, at sixteen I went to college—such are the pronounced memories from which most persons would be able to trace out details of the past.

We have now, then, to study the nature of the roads by which the train of thought passes from one idea to

another in our mental world. First of all it must be observed that two separate or dissociated ideas will not co-exist in the mind without blending. A new idea can come forward in thought only by linking itself with another already in the mind. If two ideas are brought together either they will blend into a larger unit, or the stronger will push out the weaker, which will then slip out of attention. Link two such ideas by a third which is common to both, and at once they will remain together comfortably before the attention. Picture, for example, in your imagination, a pen and a hand, separately. Now try to hold these separate ideas at once before the mind. You will find that the attention runs rapidly to and fro from one object to the other, and each is lost in turn ; but if you picture the pen in the hand in the act of writing, it becomes easy to hold them together without any variation of attention, because they are then really one idea, the two objects having a unity of purpose and action.

Carefully read two or three times the following series of words: noise ; hand ; terror ; ink ; colonel ; thunder ; black ; ghost ; pen ; lightning ; army ; head ; cannon ; light ; skull. Now close the eyes and try to repeat them. You will not be able to do so unless your memory is very good. Take next the following series, and read them equally carefully: colonel ; army ; cannon ; noise ; thunder ; lightning ; light ; black ; ink ; pen ; hand ; head ; skull ; ghost ; terror. Now close the eyes and try to repeat the words, and you will experience a most agreeable feeling of surprise at the ease with which you can perform this little feat.

Now the question is : Why in the first place were you not able to recall the series of ideas, while in the second case you could easily remember them ? The words are exactly the same in both the sets. The reason is that in the second series the words are in *rational* order or relation, while in the first they are not. Therefore, put your ideas in proper order, and you will not then have reason to complain of a bad memory. The best way is not only to put your ideas in order one at a time, but also carefully to observe the relation between each two that come together ; that is, to notice the unit idea which binds the two ideas into one, which constitutes the bridge or the road along which thought travels from one to the other. There are *nine* such relationships, coming under the general heads of *contiguity*, *comparison* and *sequence*. Though these in turn are bindable, we are not here considering that matter, as this is a book of practice, not of metaphysics.

Contiguity means an association of things in experience or in vivid imagination. For example, when I think of a banyan tree, at once I think also of the great tree outside my window, and of the squirrels and crows which throng its branches. A banyan tree is not necessary to the idea of squirrels, nor are they any part or connection of a banyan tree ; nevertheless, these have been so closely associated—quite accidentally—in my experience, that the thought of either evokes a picture containing both. There are probably few of us who can think of the Duke of Wellington without some vision or idea of the battle of Waterloo ; or again of Napoleon without some thought of Corsica or of the

island of Saint Helena, because these are always pictured together in connection with the accounts of their lives; yet they are not necessarily associates. A thought of William the Conqueror is almost inseparable from another of the village of Hastings, not because these are necessarily connected, but because they are vividly, though accidentally, presented together in experience. Another case is that of George Washington and the cherry tree; another King George and Queen Mary; another Mrs. Besant and Theosophy; another cow and grass. Similarly, we all remember incidents connected with the places where we have lived, the countries, towns, houses, rooms, furniture, people, accidents of every kind—an immense collection of incidents all strung together like beads upon a string. For example, as a child I use to see horrible and grotesque faces peering and leering and grimacing at me in the night; now such malign imps are indelibly stamped in my mind along with the thought of my early childhood, the houses in which I lived, and the very rooms, the curtains, the wall-hangings and many minute details of the rooms in which I slept. The idea of elephants is for me particularly associated with the city of Baroda, because when I was there, I was each night awakened by an imposing procession of them passing the balcony on which I lay. For many people it is, no doubt, more closely linked with pictures of the Zoo, of great wooden bars and the ringing of bells for pennies and biscuits.

More familiarly, pen is associated with hand, boots with feet, carriage with horse, ship with sea, sleep with

bed, spade with garden, letter with post office, cat with hearth-rug, and so on to an unlimited extent. Yet all these pairs of ideas have purely accidental connections, the members of each pair having no comparative relationship with each other. They are contiguous, having a relation for sense or imagination, but not for reason.

It is different, however, with banyan tree and hanging roots, squirrel and bushy tail, crow and black, Wellington and Napoleon, Napoleon and Hannibal, George Washington and American, cherry tree and blossom, atheism and religion, Besant and Blavatsky, cows and horses, possibility and impossibility, house and room, elephant and trunk, Bombay and Baroda. All these have a relationship of *comparison* or of necessary association of some kind. A banyan without its roots, or an elephant without its trunk, would be incomplete ideas, while cows and horses, Napoleon and Hannibal, Bombay and Baroda obviously resemble each other in their respective pairs.

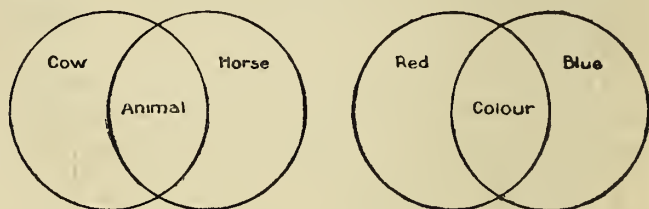
We will now proceed to define the *nine* kinds of relations between ideas, under which every possible relation between any two ideas may be placed. They should be *thoroughly* learned.

1. *Division (Div.)*—This occurs when one idea includes another because of a common characteristic which one has in part and the other in whole. It may be otherwise expressed as object and class. Examples of *Div.* are: animal and cow; Englishman and man; Harold and Saxon; dwelling and mansion; drink and tea.

We may symbolise the relationship by one circle within another, thus :

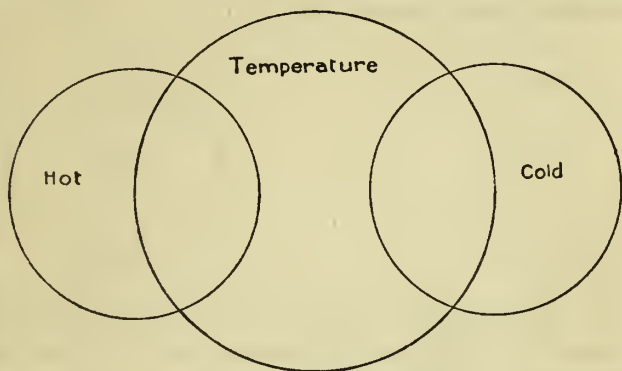


2. *Similarity (Sim.)*—This occurs when two ideas or objects have something prominent in common, or when two objects belong to the same class. Examples of *Sim.* are: cow and horse (both animals); chair and table (both articles of furniture); red and blue (both colours); daisy and buttercup (both flowers); train and ship (both means of transport); box and bag; snow and ice; father and son; beech and oak. We may symbolise the relationship by two circles overlapping, thus :

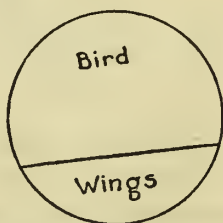
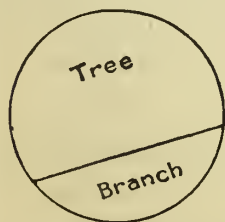


3. *Contrast (Con.)*—This occurs when two ideas or objects have a prominent characteristic in common, as regards which they express opposite degrees. Examples of *Con.* are: hot and cold (both temperatures, but opposite); up and down (opposite directions); animate

and inanimate; curvilinear and rectilinear; fire and water; light and darkness; sage and fool; king and peasant. We may symbolise the relationship thus:

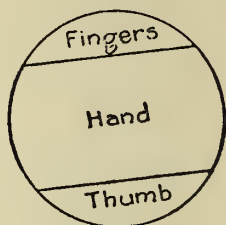
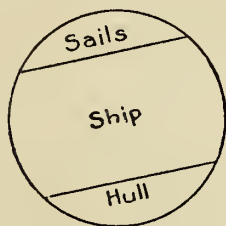


4. *Partition (Part.)*—This occurs when two things or ideas are respectively whole and part of some natural object or definition. Examples of *Part.* are: tree and branch; whale and blubber; Bengal and India; sea and waves; book and page; box and lid; cow and horns; bird and wings; ten and five; river and water. We may symbolise the relationship thus:

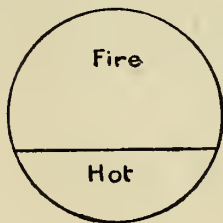


5. *Partnership (Partner.)*—This occurs when two ideas or objects are different parts of the same whole.

Examples of *Partner*. are : hull and sails (of a ship) ; thumb and finger (of a hand) ; root and branch (of a tree) ; nerves and muscles ; stairs and door. We may symbolise the relationship thus :

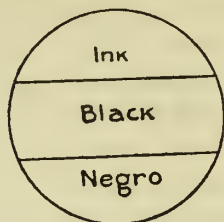
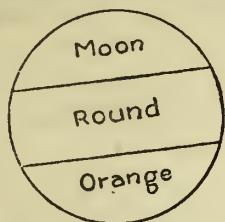


6. *Analysis (Anal.)*.—This occurs when two objects or ideas are related as object to quality, or substantive to adjective. Examples of *Anal.* are : lead and heavy ; snow and white ; fire and hot ; ball and round ; bottle and glass ; coin and gold ; bag and leather. We may symbolise the relationship thus :



7. *Affinity (Affin.)*.—This occurs when objects having the same prominent quality are linked together. Examples of *Affin.* are : moon and orange (both round) ; paper and snow (both white) ; ink and negro (both black) ; feathers and cotton (both light) ; church spire

and factory chimney (both high). We may symbolise the relationship thus :



8. *Coexistence* (*Coex.*)—This occurs when two objects or ideas cling together in the mind merely as the result of personal experience or vivid imagination. Examples of *Coex.* are: tree and crows; turban and Hindu; India and Viceroy; fire and grate; and the instances already mentioned on page 14.

9. *Succession* (*Suc.*)—This occurs when two ideas cling together merely as the result of their being found to succeed each other in time, or to have a relationship of cause and effect. Examples of *Suc.* are: fatigue and sleep; poison and death; thunder and fear; reading and knowledge; gluttony and illness; benevolence and gratitude; government and order.

This completes the whole set of relations between ideas. The relation between any pair of ideas comes under at least one of these heads. These should be committed carefully to memory so that the connection between any two ideas can instantly be seen and named.

Now let us go once more over the list of words given on page 14 and, taking them two by two, observe the connections between them. It is useful at first to

use words rather than a gradual blending and transformation of mental images, and as the process becomes swifter allow the words to drop and the mental images gradually to change. Suppose for example you connect the idea of a horse with that of a cow, if you use word symbols you say to yourself "horse, cow, *Sim.*; horse, *Sim.*, cow". If you use images, you picture the horse, gradually change it until you have an animal which contains the main characteristics of a cow and a horse by superimposition, then obliterate the horse and leave the cow. Some people, in forming their links, use words, while others use pictures; either method will serve, but it is generally advisable to visualise the images as much as possible. The most important point of practice is that *only two* ideas shall be taken together, and the link between them clearly noticed. The connections between the words in the set already given are shown below, as an example :

| | | | |
|-----------|-----|------------|---------------------------|
| colonel | and | army, | (<i>Div.</i>) ; |
| army | and | cannon, | (<i>Coex.</i>) ; |
| cannon | and | noise, | (<i>Suc.</i>) ; |
| noise | and | thunder, | (<i>Div.</i>) ; |
| thunder | and | lightning, | (<i>Sim. or Suc.</i>) ; |
| lightning | and | light, | (<i>Div. or Suc.</i>) ; |
| light | and | black, | (<i>Con.</i>) ; |
| black | and | ink, | (<i>Anal.</i>) ; |
| ink | and | pen, | (<i>Coex.</i>) ; |
| pen | and | hand, | (<i>Coex.</i>) ; |
| hand | and | head, | (<i>Partner.</i>) ; |
| head | and | skull, | (<i>Part.</i>) ; |
| skull | and | ghost, | (<i>Coex.</i>) ; |
| ghost | and | terror, | (<i>Suc.</i>) . |

We may now sum up our relationships in the following table:

THE ASSOCIATION OF IDEA-IMAGES

| | | | | |
|------------|---|--|---|---|
| Comparison | { | Inclusion (one idea includes the other) | { | Division (object and class) |
| | | | | Partition (whole and part) |
| Comparison | { | Overlap (the two ideas have something prominent in common) | { | Analysis (object and quality) |
| | | | | Similarity (objects of the same class) |
| | | | | Contrast (objects differing widely in a common quality) |
| | | | | Partnership (parts of one whole) |
| Contiguity | { | | | Affinity (objects having the same quality) |
| | | | | |
| Contiguity | { | | | Co-existence |
| | | | | Succession |

We may also tabulate the relationships of Comparison in another manner:

| | | | | |
|------------|---|----------|---|-------------------------------|
| Comparison | { | Logical | { | Logical Inclusion (Division) |
| | | Natural | | Logical Overlap (Similarity) |
| | | | | Logical Contrast (Contrast) |
| Comparison | { | Natural | { | Natural Inclusion (Partition) |
| | | | | Natural Overlap (Partnership) |
| Comparison | { | Abstract | { | Abstract Inclusion (Analysis) |
| | | | | Abstract Overlap (Affinity) |

There is also a subtle distinction between mere succession and cause and effect, but for our practical purposes we admit them both under the head of succession.

EXERCISE 7. *Fifth and Sixth Weeks.* Carefully study the relationships between the successive pairs of ideas of the following twenty-five words, using the

abbreviations *Div.*, *Sim.*, *Con.*, *Part.*, *Partner.*, *Anal.*, *Affin.*, *Coex.* and *Suc.* :

| | | | | |
|-------------|-----|--------------|----------------------------------|----------------------|
| animal | and | cow, | (<i>Div.</i>) ; | forget animal ; |
| cow | and | horns, | (<i>Part.</i>) ; | forget cow ; |
| horns | and | knife, | (<i>Affin.</i>) ; | forget horns ; |
| knife | and | spoon, | (<i>Sim.</i>) ; | forget knife ; |
| spoon | and | tea, | (<i>Coex.</i>) ; | forget spoon ; |
| tea | and | wakefulness, | (<i>Suc.</i>) ; | forget tea ; |
| wakefulness | and | sleep, | (<i>Con.</i>) ; | forget wakefulness ; |
| sleep | and | vigour, | (<i>Suc.</i>) ; | forget sleep ; |
| vigour | and | Hercules, | (<i>Anal.</i>) ; | forget vigour ; |
| Hercules | and | Greece, | (<i>Coex.</i>) ; | forget Hercules, |
| Greece | and | Italy, | (<i>Sim.</i>) ; | forget Greece ; |
| Italy | and | top-boot, | (<i>Sim.</i>) ; | forget Italy ; |
| top-boot | and | highwayman, | (<i>Coex.</i>) ; | forget top-boot ; |
| highwayman | and | horse, | (<i>Coex.</i>) ; | forget highwayman ; |
| horse | and | swift, | (<i>Anal.</i>) ; | forget horse ; |
| swift | and | eagle, | (<i>Anal.</i>) ; | forget swift ; |
| eagle | and | peak, | (<i>Coex.</i>) ; | forget eagle ; |
| peak | and | snow, | (<i>Coex.</i>) ; | forget peak ; |
| snow | and | cotton-wool, | (<i>Affin.</i>) ; | forget snow ; |
| cotton-wool | and | gas, | (<i>Affin.</i>) ; | forget cotton-wool ; |
| gas | and | liquid, | (<i>Sim.</i> or <i>Con.</i>) ; | forget gas ; |
| liquid | and | sap, | (<i>Div.</i>) ; | forget liquid ; |
| sap | and | bark, | (<i>Partner.</i>) ; | forget sap ; |
| bark | and | skin, | (<i>Div.</i> or <i>Sim.</i>) ; | forget bark. |

After studying the relationships between each pair in turn, close the book and repeat the whole series slowly forwards and backwards, and you will be pleasantly surprised to find that you can very easily do this. The words that we have taken are of no particular use, but it will easily be seen that the same principle may be employed for remembering useful lists of things. What is important at the moment, however

is that the principles shall be understood and readily applied. On the second day of this practice repeat the same twenty-five words again, without looking them up. If you have any difficulty in remembering any of them, try every possible device before you consent to look up the list in the book. If in going forwards you come to a stop, start from the end and work backwards until you meet the difficulty in the rear. If that does not avail, take the word next to the missing one, and ask yourself whether the connection was one of *Div.*, *Sim.*, *Con.*, *Part.*, *Partner.*, *Anal.*, *Affin.*, *Coex.* or *Suc.* The recovery of the last idea is sure by this method. One should on no account submit to the ignominy of looking up the list, either as an admission of failure, or worse still as a capitulation to mental indolence. The mind should be firmly made to render complete obedience. When repeating the words you need not recall the relationships or linkages, except when a break-down occurs. After repeating the twenty-five words, add twenty-five more each day, and repeat the whole series forwards and backwards.

All these links can be expressed in a more familiar way for the mind unaccustomed to logical methods and formulæ. In such a case we recommend the following broad rules as the means of linking :

1. When you link two ideas together always give a clear reason for their association.

2. Never invent any unnatural reason.

Let us illustrate this by the following series :

1. Yellow and gold : because gold is of yellow colour.

2. Gold and metal : because gold is a metal.

3. Metal and iron : because iron is a metal.
4. Iron and rails : because rails are made of iron.
5. Rails and railway : because rails are part of a railway.
6. Railway and steam : because there is steam traction on most railways.
7. Steam and water : because these are two forms of the same thing.
8. Water and ice : because these also are two forms of one thing.
9. Ice and snow : because they are much alike in many ways.
10. Snow and soft : because snow is very soft.
11. Soft and fur : because fur also is very soft.
12. Fur and skin : because the fur is attached to the skin of the animal.
13. Skin and hand : because the skin is part of the hand.
14. Hand and pen : because we hold a pen in the hand when we write with it.
15. Pen and paper : because with a pen we usually write on paper.

We may take a more difficult example : water ; paper ; railway ; gold ; steam ; fur ; pen ; snow ; metal.

A sheet of paper is smooth like the surface of calm water. Or again, water is used in making paper-pulp. What is the connection between paper and railway ? Sometimes carriage wheels are made of compressed paper-pulp, and everybody must be familiar with the forms of the book-stall boys running about in the big railway stations, selling their bundles of papers. Next come railway and gold. Here it would be rather unnatural to think of railway trucks heaped up with gold ; it would be better to observe that the railway companies are immensely rich and that much gold passes through their hands. How is gold related to

steam? The use of steam power has increased the wealth of humanity enormously, and wealth is represented by gold. The next pair is steam and fur. Furs are warm; warmth produces steam from water; or, let us say, steam issues from a hot place, such as a volcano, while the most valuable furs are obtained (with great cruelty, be it remarked) from the cold latitudes, there being a contrast between the two ideas in this respect. We come to fur and pen. The hair of animals is used (among other things) for making artists' brushes, and the brush and the pen are akin, since both are used for the same purpose, that of writing and drawing upon paper. We might associate these two in another way. Fur and feathers are the coverings of animals and birds respectively, and a quill pen is made from the feather of a goose. As for pen and snow, let us say the feather of a quill is as white as snow. In deference to rule 2 we must, of course, avoid making an idea such as "I find a pen in the snow," or "I see a snow-man eating a fountain pen". Such ridiculousities have no part in the true art of memory. Snow can be connected with metal because one is soft, the other hard. Metal can be connected with the skin, on the ground that knights of old used to wear metal armour, and though as a rule it did not touch the skin it was, as it were, a metal skin to the body. A good alternative is the idea that the skin of a warship is made of metal.

CHAPTER IV

TO REMEMBER A SERIES OF THINGS

(Continued)

It sometimes happens in practice that a student has to remember a number of things which he may put in any order he chooses, as, for example, lists of foreign words; but more frequently a certain predetermined order is required, as in learning historical series of events, committing to memory heads of a lecture or book, and especially in practical life, where one may often require in the morning to remember a number of things he wishes to do during the day. In this latter case it is obvious that the subjects will not fall into an order serially connected in the way which we have already illustrated. Here again all increase of knowledge is the adding of one to one, the unfamiliar to the familiar, the new to the old, but we are not able always to choose the order and thus to benefit by the facilities of direct association.

An effort is sometimes made to remember together things which have no direct association, but it usually fails—for there can be no leap in consciousness; each

idea must follow another directly connected with it by one of the nine links we have given. The process we now give is not artificial; in fact, it is *always* followed, though generally sub-consciously, when unconnected things are remembered together.

Suppose you wish to go into the town to carry out various items of business in order, such as the following :

- (1) To purchase some barley at the market ;
- (2) To hire a labourer for some building alterations ;
- (3) To keep in mind the proverb that a bird in the hand is worth two in the bush (since former experience has taught you the value of the maxim) ;
- (4) To buy some aromatic spices at a grocer's ;
- (5) To call to see a lawyer about a friend's suit in Chancery ;
- (6) To buy some velvet ;
- (7) To collect some money due ;
and so on.

Now, many people would write these items down, if there were any considerable number of them, but it is far better that we should remember our own business, and we all know that notebooks weaken the memory. In this case, we have to remember the following ideas in succession : barley, labourer, bird, spices, Chancery, velvet, debt, etc. By putting one or two intermediaries between each we at once overcome the difficulty of remembering. Thus :

Barley (*Div.*) ; barley-field (*Coex.*) ; harvest (*Coex.*) ;
 Labourer (*Sim.*) ; game-keeper (*Coex.*) ; game (*Div.*) ;
 Bird (*Coex.*) ; bird-seed (*Div.*) ; groceries (*Div.*) ;
 Spices (*Div.*) ; red-pepper (*Affin.*) ; red-tape (*Coex.*) ;
 Chancery suit (*Coex.*) ; Chancellor (*Part.*) ; robe (*Anal.*) ;

Velvet (*Anal.*) ; slippery (*Anal.*) ; debtor (*Coex.*) ;
Debt and so on.

The same plan can be employed to remember other lists, chapters of books, headings of lectures, or anything else. In practice, the extremes, say barley and labourer, are considered ; an effort is made to work forwards from barley and, as it were, backwards from labourer, until the two meet. There is very rarely any necessity for more than two intermediaries. Having formed our connections we may repeat the series a few times, and presently the intermediaries can be dropped out and the series will be remembered without them, as they are only a temporary aid to bring the pairs of ideas together.

The recall of such a series is made easier, when the mood in which they were originally associated is revived, so when trying to revive an impression go back in imagination and put yourself into the mood in which you originally received it. You may have been to a lecture, which you now wish to remember. First recall the mood, the whole attitude of the attention as it was at the time given to the lecturer, to the subject of the lecture and to its different parts in turn. It will be quite impossible for you to recall the succession of the ideas of the lecture if you are at the same time thinking of what you will have for dinner, what so-and-so has been saying about you, how you will carry out such-and-such a plan, what a cold day it is, or what a noise the people round about are making. A certain kind of indifference to personal interests is essential for success in this practice.

The student practising the repetition of a series of ideas such as have been suggested is recommended to notice with the greatest care exactly what takes place in his mind when he comes to an obstacle in the process, and finds himself unable to remember the next link of the chain. At once the attention darts off in a new direction, taking up another line of ideas of its own. This indicates not so much a lack of memory as a change of mood. If the new mood is overcome and the mind is forced by the will into the original one, the attention is bound to go in its original direction, for the mood determines the path of least resistance for it.

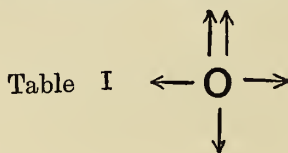
EXERCISE 8. *Seventh Week.* Make up each day a list of ten or twelve things, which are not directly connected; commit them to memory by the foregoing method of intermediaries, and each day repeat the whole series, without intermediaries.

CHAPTER V

TO FAMILIARISE THE UNFAMILIAR :

BY IMAGINATION

WE have already observed the means of associating idea-images directly and indirectly linkable, but we have still to consider how to deal with things which have no meaning, such as the letters of an alphabet, the appearance and names of plants, minerals, persons, geographical outlines, and other things of an unfamiliar kind. A mental image or idea may be familiar or unfamiliar. Let us represent an idea by a circle, and the degree of its familiarity, which will, of course, vary with different persons, by radiating lines; for the degree of its familiarity means the number of ideas that readily spring up in connection with it, radiating from it. We then may figure the degree of familiarity by the following symbols, for which we are indebted to one Major Beniowsky, a Polish mnemotechnist, who taught the art three-quarters of a century ago.



Ink II $\Leftarrow \bigcirc \Rightarrow$

Lion III $\leftarrow \bigcirc \rightarrow$

Zodiac IV $\leftarrow \bigcirc \rightarrow$

Chicholo V \uparrow
 \bigcirc

In this case the extreme degrees may be spoken of as familiarity and unfamiliarity, and symbolised thus : (I) and (V).

We will now take the terms familiar and unfamiliar as applying to any idea we may have ; then in linking any two ideas together we find ourselves confronted by one of three problems, which Major Beniowsky called the three phrenotypic problems.

These three phrenotypic problems are :

(1) To associate a familiar with a familiar, a (I) with a (I), as, for example, table with chair, or man with machine.

(2) To associate a familiar with an unfamiliar, a (I) with a (V), as elephant with obelus, or green leaf with chlorophyll.

(3) To associate an unfamiliar with an unfamiliar, a (V) with a (V), as pomelo with amra, or scutage with perianth.

We will here quote Major Beniowsky's excellent illustration :

Suppose a London publisher who, having been for many years a constant reader of the newspapers, cannot fail to be familiar with the *names* of the leading members of the House of Commons. He knows about the biography, the literary productions and the political principles of Dr. Bowring, Sir Robert Peel, Lord Melbourne, and others, as much as any man living. Suppose also that he, having on many occasions seen these personages themselves, as at chapel, at the opera, or at the museum, has their physiognomies, their gait, and other characteristics perfectly impressed upon his brain. Suppose, moreover, that they are his occasional customers, although he never knew *who* those customers were, that he never in the least suspected that those customers were the very individuals whose speeches he had been anatomising, and whose political conduct he had been praising or deprecating. He knows their *names* well; he knows a host of circumstances connected with those names; he knows the personages themselves well; he had seen them, conversed with them, dealt with them; still he had never had an opportunity of learning that those names had anything to do with those personages.

A visit to the gallery of the House of Commons during a debate is the occasion on which those names and their owners are for the first time brought into contact in his brain. The speaker, one of his customers, takes the chair, and at once our publisher bursts out into an "Is it possible!" He can scarcely believe that the gentleman whom he has seen so often before is the very speaker

of the House of Commons, whose name and person he knew separately for so many years. His surprise increases as he sees Dr. Bowring, Sir Robert Peel, Lord Melbourne and others address the House. He knew them all; he had seen them in his own shop; he had conversed with them; nay, he had made serious allusions to their names when they were present. He is now determined to commit to memory the names of all these personages; in other words, he is determined to stick together the *names* with their respective *personages*.

Next to him in the gallery sits a Colonial publisher, just arrived, say, from Quebec. This Colonial gentleman is perfectly familiar with the names of the above-mentioned Members of Parliament; but he never before saw any of them. He also attempts to commit to memory the names of various speakers on the occasion.

In another corner of the same house sits a Chinaman, just arrived in London, who also wishes to commit to memory the names, appearances, gaits and dresses of the barbarians who spoke and legislated in his presence.

The Londoner, the Colonial gentleman and the Chinaman have evidently the same piece of knowledge to heave into their brain; but for the Londoner it is the first phrenotypic problem; he has to stick together a name which is to him a *familiar* notion, with a personage which is for him a *familiar* notion also—

thus, a (I) with a (I).

For the Colonial gentleman it is the second phrenotypic problem; he has to stick together a name which is for him a *familiar* notion with a personage which is for him a *not-familiar* notion—

thus, a (I) with a (V).

For the Chinaman it is the third phrenotypic problem. He has to stick together a name which is for him a *not-familiar* notion, with a personage which is for him a *not-familiar* notion—

thus, a (V) with a (V).

The task for the Chinaman is an exceedingly difficult one, yet students have often to face it. Imagine the distress of a student of botany who has hundreds of times to link a (V) with a (V), the appearance of an unfamiliar plant with an equally unfamiliar name. There is only one way of getting out of the difficulty, and that is in every case to make the unfamiliar thing familiar, to make the (V) into a (I), either by thinking about it and studying it, or by seeing in it a resemblance to something already familiar. It is best not to try to link any idea into a series until it has been made perfectly familiar. We give another example, from the Major, of the process of making the unfamiliar familiar, showing how we should deal with the names of unfamiliar persons and objects which we desire to remember:

In my early infancy my father, a physician and extraordinary linguist, initiated me into the mysteries of several mnemonic contrivances; in the study of languages I invariably employed the association of ideas. I succeeded so far that, when at the age of not full thirteen, my father sent me to study medicine at the University of Vilna, in Poland. Relying upon my extraordinary memory, as it was called, I attended several courses of lectures besides those prescribed for students in medicine. I succeeded perfectly in every subject for several months, until spring came, and with it the study of botany. In this, far from outstripping my fellow-students, I actually remained behind even those whom I was accustomed to look upon as poor, flat, mediocrities. The matter stood thus: Besides attending the lectures on botany, the students are admitted twice a week to the botanical garden: there they find a metallic label with a number upon it: that number refers them to a catalogue where they find the respective names: these names they write out into a copy-book thus:—

| | | |
|----------|---------|------------------------|
| No. 1779 | | Valeriana officinalis. |
| No. 9783 | | Nepeta Cataria. |
| | | etc., etc. |

Having thus found out the names of a dozen plants, they endeavour to commit them to memory in the best manner they can. Any one finds it tiresome, awkward and annoying to look to the huge numbers upon the label, then to the catalogue, then to the spelling of the names, then to the copy-book, and after all to be allowed to remain there only about an hour twice a week, when the taking away of a single leaf may exclude you for ever from entering the garden at all. But I was peculiarly vexed and broken-hearted : I came to the garden tired out by other studies ; I had a full dozen of copy-books under my arm, a very old catalogue with many loose leaves ; to which if you add an umbrella in my left hand, a pen in my right, an ink-bottle dangling from my waistcoat-button, and, above all, the heart of a spoiled child in my breast, you will have a tolerable idea of my embarrassment. Week after week elapsed before I mastered a few plants : when I looked at home into my copy-book, the scribbled names did *not* make the respective plants rise before my imagination ; when I came to the garden, the plants did not make their respective names rise. My fellow students made, in the meantime, great progress in this, for me, so unmanageable study : for a good reason—they went every morning at five into the fields, gathered plants, determined their names, put them between blotting-paper, etc.—in a word, they gave to botany about six hours a day. I could not possibly afford such an expenditure of time ; and besides, I could not bear the idea of studying simply as others did. The advantages I derived from mnemonic contrivances in other departments induced me to hunt after some scheme in botany also.

My landlady and her two daughters happened to be very inquisitive about the students passing by their parlour window, which was close to the gates of the university ; they scarcely ever allowed me to sit down before I satisfied their enquiries respecting the names, respectability,

pursuits, etc., of at least half-a-dozen pupils. I was never very affable, but on the days of my mischievous botanic garden they could hardly get from me a single syllable; I could not, however, refuse when they once urged their earnest request thus: "Do tell us, pray, the name of that fish, do!"—pointing most pathetically to a pupil just hurrying by, close to the window, when I answered, "His name is Fisher," (I translate from the Polish, Ryba Rybski) they burst into an almost spasmodic chatter, "We guessed his name! Oh, he could not have any other name! Look only," continued they, "how his cocked hat sits upon his head, pointing from behind forward, exactly in the same direction with his nose! Look at the number of papers and copy-books fluttering about on each side between his ribs and elbows! Look how he walks—he is actually swimming! Oh, the name Fisher suits him exceedingly well." I could not but agree with the justness of their remarks; I complimented them; I became more attentive to their conversation when at table, which happened to run thus: "Mother, what has become of the Long Cloak? I saw him yesterday with the Old Boot; do they reside together?" "Oh, no; the Long Cloak looks often through yon garret window, where the Big Nose lived some time ago." They perfectly understood one another when using these nicknames, Long Cloak, Old Boot, Big Nose, etc., etc.

This conversation suggested to me at once the means of dispensing with my old anarchical catalogue when in the garden, and in fact the whole plan of proceeding in the study of botany stood before my view; I felt confident that I should soon leave all the young, jealous, triumphant and sneering botanic geniuses at a respectable distance behind. It happening to be the time of admission, I proceeded immediately to that corner of the garden where the medical plants were, leaving the catalogue at home. I began by christening these plants just in the same manner as my landlady and her ingenious daughters christened the students of the university; that is, I gave them those names which spontaneously were suggested to me by the sight, touch, etcetera, of them. The first

plant suggested imperatively the name of *Roof covered with snow*, from the smallness, whiteness, and peculiar disposition of its flowers, and so I wrote down in my copy-book, "No. 978, *Roof covered with snow*." Next I found No. 735, *Red, big-headed, cock-nosed plant*; and so on to about twenty plants in a few minutes. Then I tried whether I had committed to memory these plants—YES. When I looked at the plants, their nicknames immediately jumped up before my imagination; when I looked at these nicknames in my copy-book, the plants themselves jumped up. My joy was extreme. In a quarter of an hour I left the garden, convinced that I had carried away twenty plants which I could cherish, repeat, meditate upon at my own leisure. The only thing that remained to be done was to know how learned people named them. This business I settled in a few minutes—I put my catalogue comfortably on the table, looked for No. 978, and found *Achilæa Millefolium*; this made rise before my imagination *an eagle with a thousand feathers*, (on account of *Aquila*, in Latin, eagle; *mille*, thousand, and *folium*, leaf.) I put simultaneously before my mind, *Roof covered with snow*, and *eagle*; and *high mountain rose* immediately before my imagination thus—*ROOFS covered with snow are to be found in high mountains, and so are EAGLES*.

I quote the Major's experience fully, as it indicates so well the average student's feelings, and so graphically explains the manner of relieving them. The Major does not appear to have known the scientific method of linking which we have adopted in the preceding chapter, but his plan for familiarising the unfamiliar is very useful. We should use his *Roof* and his *Eagle*, but link them—*Roof covered with snow*—(Affin.)—*mountain peak*—(Coex.)—*eagle*.

The same plan may be employed for remembering unfamiliar forms. In order, for example, to remember the forms of a foreign alphabet look at each form until

you find in it some resemblance to another form which is familiar. In order to show how this may be done we print below the unaspirated consonants of the Devanagari alphabet which is used in Sanskrit and some of its derivative languages.

| | | | |
|------|-------|------|------|
| | क ka | ग ga | ङ ṅa |
| | च cha | ज ja | झ ṣa |
| ट | ई ta | ड ḍa | ण ṇa |
| त | ई ta | द ḍa | न na |
| | प pa | ब ba | म ma |
| य ya | र ra | ल la | व va |
| श ṣa | ष sha | स sa | ह ha |

To learn these, first look over them and pick out any that suggest a familiar form, and try to associate that form with the sound of the letter. Here the centre portion of क is obviously like a *knot*; ग is like a *gallows*; ङ is like a *writhing snake*; च is like a *pointing finger*—*chiding*; ज is like a *footballer kicking*—*scrimmage*; झ resembles a *lobster's nipper*; ण resembles the *sign-post of an inn*; त is like a *tail*; द resembles a *hunch-back sitting down*—*dwarf*; न resembles a *nose*; प is like a *P turned round*; ब is like a *button*, or a *ball*, or an *eye*—*blue*, or a *bull's eye*; म is quite *square*—*mathematical*; ल is like a *crab's claw*—*leg*; व is like a *valve*; ष resembles a *shield*; and ह is like a *laughing mouth*. Now compare the forms with one another arranging the similar ones together. ङ resembles ङ; झ is similar to च; त and न are similar; प, य and ष have a close resemblance; स is not unlike म, and so on. The ingenious student may learn the whole alphabet in an hour by this method.

We will now give the Roman alphabet in a form in which it can be taught to young children in a very short time.

A stands for an arch; B for a bee; C for a coil, a caterpillar or a cobweb; D for a drum; E for an elephant sitting up in a circus; F for a finger-post or fork; G for a gargoyle or grimace; H for a hurdle; I for an icicle or a little imp standing stock-still; J for a juggler lying on his back, balancing a ball on his feet; K for a knot; L for a leg and foot; M for mountains; N for a folded note; O for an orange; P for a pansy or a pole-axe; Q for a queer, comical cat; R for a rat climbing a wall, with its tail touching the floor; S for a snake; T for a small table; U for an urn; V for a valley; W for waves; X for an X-ray photograph with bones raying-out or crossed; Y for yarn, frayed at the end; Z for a zigzag flash of lightning. For each of the objects the teacher should draw in the presence of the child a picture bearing a strong resemblance to the letter that is to be taught.

We could do the same with any other alphabet. The following are some suggestions for learning Pitman's shorthand outlines: |, t, is like a T without a top;—k, is a coward lying down; ˘ m, is like a little mound. Among the Greek letters *gamma* is like a catapult game; *pi* is like an archway—*pylon* *lambda* is leaning; *phi* is like an arrow piercing a target—battle—*fight*. The Persian character requires a little more imagination than most of our alphabets do; yet when I look at it I find it full of boats, waves,

commas, eyes, wings, snakes, and funny little men standing, crouching and running.

Turning now to geographical outlines, the best-known example of comparison is the outline of Italy, which every schoolboy remembers much better than he does that of any other country, for the simple reason that he has noticed that it resembles a big Wellington boot kicking at an irregular ball, which we call the island of Sicily. Africa is like a ham; South America resembles a peg-top; Mexico is like a sleeve; Newfoundland resembles a distorted lobster; France has been said to resemble a shirt without sleeves; Norway and Sweden are like an elephant's trunk; India is like Sri Krishna dancing and playing his flute; the river Severn is like a smiling mouth.

The student of botany has to remember the general appearance of a large number of plants and flowers. We have already seen that the best plan to follow in remembering this is not to go into the garden or the field with textbook in hand, but to go among the flowers and plants and give them names of your own invention. When the forms are thus made familiar to the mind, they can easily be recalled by remembering the new names, and afterwards the orthodox names can be learned, just as we should learn a number of foreign words. We are perfectly familiar with the sunflower and the buttercup and the bluebell, and even the campanula is obviously a cluster of most exquisite bells; but when we come to narcissus, calceolaria, chrysanthemum and eschscholtzia, it certainly is beginning to be a little trying to the student.


There is a hedge near my dwelling that is full of jolly little old men with occasional purple grey hair, and they bob their funny round heads in the breeze in response to my nod. I do not in the least know their name, but we are not worse friends on that account. The story of Narcissus is indeed beautiful, and the way in which the gentle flower bends its lovely head is remindful of the fall of the Spirit enamoured of its image reflected in the waters of existence; yet for most of us it remains a beautiful star. The crinkled white champaka reminds me always of the sacred Svastika; and the clover, so like a fluffy ball, is in India often called the rudraksha flower, because it is thought to resemble the crinkled berry beads which Yogis wear, these in turn being held sacred because their markings are thought to be strange letters (aksha) written by the God Rudra or Shiva. We may think of the calceolaria as the flower with the drooping bag-like lip; the pansy, with its large velvet face; the curious lips and curly strings of the sweet pea; and the rose, which is not unlike an exfoliated heart; and we may know these little ones much better by these happy names than if our brains are fagged beforehand by the crabbed terminology of the books.


EXERCISE 9. *Eighth Week.* Learn a few alphabets or arbitrary forms. After inspecting and associating the forms make them pass in review before the imagination.

CHAPTER VI

TO FAMILIARISE THE UNFAMILIAR: BY EXPANSION OF IDEAS

THE subject of this chapter, as of the last, is to fa-

miliarise the unfamiliar, to make a  into

 but in this we shall compare ideas with

regard to the essential qualities rather than the non-essential, and thus appeal to the rational mind rather than to the imagination.

The practice now to be undertaken consists in thinking everything you can about a given thing, along the lines indicated by the nine links which we have already studied, keeping the one thing in mind during the whole process. Let us take, as an example, the idea represented by the word "man," and work it out link by link.

HUMAN

1. *Div.* Mammal ; biped ; Englishman ; American ; Indian ; judge ; householder ; collector ; trader ; sailor ; tea-taster ; clown ; gentleman ; rogue ; philanthropist ; sage ; devotee ; pigmy ; giant ; etc., etc.

2. *Sim.* Animal ; vegetable ; ape ; bird ; reptile ; etc., etc.

3. *Con.* Devil ; fiend ; worm ; God ; master ; woman ; child ; etc., etc.

4. *Part.* Head ; brain ; nose ; eye ; hand ; foot ; arm ; heart ; lung ; finger ; thought ; feeling ; sense ; hair ; skin ; artery ; vitality ; body ; soul ; spirit ; etc., etc.

5. *Partner.*

6. *Anal.* Good ; wicked ; tall ; short ; white ; brown ; black ; strong ; hale ; kind ; jolly ; morose ; humorous ; saintly ; mad ; foolish ; wise ; conceited ; etc., etc.

7. *Affin.*

8. *Coex.* Coin ; paper ; cattle ; horses ; metals ; timber ; speech ; thought ; etc., etc.

9. *Suc.* Agriculture ; civilisation ; clothing ; building ; cooking ; machinery ; manufactures ; money ; railways ; bed ; book ; watch ; ship ; poverty ; wealth ; garden ; etc., etc.

Let us take another example: "orange".

ORANGE

1. *Div.* Fruit ; Citrus ; Portuguese orange ; China orange ; blood orange ; Tangerine, Seville orange ; etc., etc.

2. *Sim.* Apple ; pear ; plum ; peach ; grape ; cherry ; jack ; papaiya ; pomegranate ; banana ; mango ; lemon ; lime ; pineapple ; bread-fruit ; gooseberry ; cranberry ;

blackberry; strawberry; tomato; raspberry; damson fig; prune; apricot; red currant; guava; etc., etc.

3. *Con.* Lemon; etc., etc.

4. *Part.* Skin; peel; juice; sections; pippins. orange tree; pulp; seed; oil; etc., etc.

5. *Partner.* Leaf; twig; bark; root; sap; etc., etc.

6. *Anal.* Sweet; sour; bitter; juicy; dry; round; yellow; green; small; large; rough; smooth; etc., etc.

7. *Affin.* Moon; sun; football; planets; globe; etc., etc.

8. *Coex.* Child; marmalade; Spain; sunshine; warmth; rain; bird; etc., etc.

9. *Suc.* Orange blossom; good health; etc., etc.

These examples are not here thought out; the comparisons made are merely an indication of the lines along which the mind may work when trying to review all that it knows in connection with any chosen object. The practice of thus evolving from an object all that is related to it is very useful; it not only tends to make the mind accurate in its observations, but also to develop a valuable facility for evolving analogies and suggesting generalisations.

EXERCISE. 10. *Ninth Week.* Take one idea each day and unfold it as much as possible along the lines *Div.*, *Sim.*, *Con.*, *Part.*, *Partner.*, *Anal.*, *Affin.*, *Coex.* and *Suc.* This should not be done cursorily, but each link should be thoroughly exhausted before the next is taken up. When doubt exists on any point, the matter should be looked up in a textbook or an encyclopædia; for knowledge gained during this practice is easily retained.

CHAPTER VII

SIMPLIFICATION AND SYMBOLISATION

IT has been related of Simonides, a Greek poet and one of the earliest exponents of mnemonic aids, that he invented, among other things, a simple device for committing to memory ideas which do not represent objects of sense, and are therefore difficult to remember. For example, in preparing a discourse concerning Government, financial matters, naval affairs, and the necessity for wisdom in the policy of the time, he would not try to memorise these topics or paragraphs of his discourse in these general terms, but represent each by a symbol—a crown or sceptre, a current coin, the image of a ship, and the figure of Minerva, respectively.

When preparing such images or symbols we should always take account of their qualities, as we have already explained in our second chapter, and make them as lively as possible. We take an extract on this point from a work written by John Willis, B.D., of Magdalen College, Oxford, which was published in 1661 :

Ideas are to be vested with their proper circumstances, according as their natures require ; for as *writings*, the fairer they are, are more facilely read ; so *ideas*, the more aptly they are conceived, according to the exigency of

their nature, are more speedily recalled to mind; and also consequently the things by them signified. *Motion* is to be attributed to *ideas* of movable things; *quiet* to *ideas* of quiet things; and good and evil savours to *ideas* representing things so qualified. Examples of movable *ideas* are: artificers at work in their shops, women dancing, trees shaken by the wind, water running from taps, and such like. Ideas of quiet things are: hens laying in their nests, thieves lurking under bushes, etc. Ideas to which sound is ascribed are: a lion roaring, a bell ringing, whistling, the rustling of trees, a chorister singing, etc. If incense burning be used for an *idea*, a sweet and pleasant odour must be attributed thereto; but, on the contrary, to vaults underground, a dank unwholesome smell is to be assigned. So also, *ideas* of merry men require cheerfulness of countenance, of sick men paleness and sadness. After this manner *ideas* of edifices, machines, and all artificial things whatsoever, ought to be signalled; proportion of form and splendour of colours must be attributed to *pictures*, grace and liveliness of letters to *writings*, glory and excellence of *workmanship* to engravings. Finally, every *idea* must have such illustration as may render it most notable and conspicuous and seem principally coherent to its nature.

The quantity and position of ideas should also be observed. In imagining small things, such as an ant, a grain of rice or of sand, or a drop of water, it is well to picture an army of ants, a huge bagful of rice, a sandy shore, or a flowing river, respectively. Again, to represent highly complex pictures, such as a battle, or a large block of buildings, it is well to reduce them in quantity or in size, and represent a battle by a few men fighting, a block of buildings by some small erections, a church or a mountain as diminutive, as though seen through the wrong end of a telescope. As to position, things which are usually hung upon walls, such as pictures, looking-glasses, and arms, should be

imagined as hanging there; books upon shelves; crockery in cupboards; clothes in wardrobes, in drawers, or on the person; tables, chairs, chests and the like, standing on the ground; and graves, wells, wine-cellars, mines and other such things, under the ground:

The mind of man doth naturally and immediately present direct ideas of all visible things, so that it is vain to excogitate any, but rather use those that offer themselves. If a man hears the account of a naval battle, doth he not presently seem to behold the sea, ships, smoke of great ordnance, and other things obvious in such matters? If speech be made of mustering an army, doth not the hearer form in his mind the effigies of a field, replenished with soldiers marching in military postures?

To this standard of direct imagination we may reduce complex or abstract ideas. The landing of Julius Cæsar may be represented by a few ships approaching the shore, their owners being repulsed by rough Britons. Christianity may be represented by a cross; Government by a crown; finance by a heap of coins, as we said before. Cold may be represented by ice; heat by fire; light by a lamp; love by a heart; pride by a peacock; gluttony by an ostrich; melancholy by a sad man; the spring time by green meadows and flowering trees; winter by houses, trees, and the earth covered with snow and rigid with frost. We are all familiar with the figure of Justice, the veiled virgin with her sword and balance; old man Time with his scythe and forelock, and his merciless wings. Let us take two more complex examples:

Milo, of Croton, a famous wrestler, first crowned in the Olympic Games, when through age he had left off his

youthful exercise and was travelling through some woodlands of Italy, espied an oak near the way rifted in the middle. Willing to try whether any of his ancient vigour remained, he thrust his hands into the cleft of the tree, to rend it down the middle. But as soon as his violence ceased, the oak thus forcibly writhed sprang back to its former position and, closing fast upon his hands, detained him a prey for wild beasts. Fancy a cleft oak full of green leaves and acorns, in the cleft of which a powerful-limbed man, crowned with laurel, is fast held by the hands. Bending back his head and body he cries out so loudly that you really seem not only to see his wretched body and the beasts preying about him, but also to hear his outcries and lamentations.

In the year 1530, in the time of Charles V, Emperor, the German Princes exhibited their Confession of Faith at Augsburg, with a solemn protestation because of that perilous time—whence afterwards they, and all such as embraced the same Confession, were called *Protestants*. Suppose an imperial throne, adorned with badges of the Empire, glittering with gold and gems, upon which sits the Emperor, crowned with a golden diadem, while to him, his nobles, bareheaded, present their Confession.

EXERCISE 11. *Tenth Week.* Take up a book and read it, keeping a continuous mental picture in the imagination, gradually modifying it as each new idea is introduced. Let the idea-image be a direct representation or a symbol, according to the instruction given in this chapter.

CHAPTER VIII

TO CAST THE MEMORY FORWARD

IT is an easy matter, in accordance with the methods which we have already given, to fix ideas not only to one another, but also to external objects, either by the links or by imagination. This is in fact what we have been doing all our lives, and if we were to look mentally, as it were, at the objects around us, we should find them plastered all over with thoughts. Take out your watch and look at it for a few minutes, keeping your thoughts still and attentive, and watch the little pictures that arise involuntarily in the mind. You will probably find an image of the person who gave you the watch or of the shop where you bought it, and pictures of any special incidents in which it has played a part. The numbers on the dial will remind you of the different duties and appointments of the hours throughout the day; while the qualities of the watch, the substances of which it is made and the accessories which are associated with it, radiate ideas in all directions, as do the ideas which we have mentioned in earlier chapters.

All the articles that we possess are similarly full of thoughts—the rooms, the houses, the streets that we enter, are saturated with them. There is thus a process, going on for the most part unconsciously, by which the mind of man, except at moments when it is under the active control of the will, is constantly influenced by his surroundings. This process can be employed for remembering things that are to come, so that at the right moment they will enter the mind, without our being put to the trouble of recalling them again and again before the appointed time. The memory may thus be cast forward by our linking the idea we want with an object that we are sure to come across and notice, and in the process we shall be free of the waste of mental energy necessitated when the idea is kept half consciously in mind throughout the interval. Suppose, for example, you wish to remember to send a note to Mr. Blank when you arrive at office, there is no need to worry the mind by continuously thinking about the matter, nor to weaken it by taking a note; simply make a clear picture of your office, project, your thought there, as it were, with Mr. Blank sitting there conversing with you, and when you arrive there the image will naturally rise up in your mind. If, during your journey by railway into town, you wish to consider some problem in electricity or in finance, fix your idea on the lighting apparatus or on the costly upholstery of the compartment; when you step into the train these things will catch your eye and remind you of the problem.

It is possible thus to hang images on prominent signs, shop and house fronts, monuments and other noticeable things you are likely to pass, and to fix ideas on the books, pictures, furniture and clothing you are likely to use. There remains in the mind a kind of latent or sub-conscious expectancy which will notify you on the slightest signal from the determined object—perhaps the same instinct which will awaken you from sleep at a time determined upon before your retiring—and when the memory is discharged this latent expectancy ceases, the association is broken and the object is left free for future associations.

Various special ways of fixing ideas on objects will naturally occur to the student. If I need to remember, for example, that I want to send a clerk out to buy a new pair of compasses I can associate the idea by making a picture of myself writing the letter A at my desk, and noticing that that letter resembles a pair of compasses. As soon as I sit down to write I shall be reminded of the intention. This purpose must be forthwith discharged, if the method is to be employed again, for unless we are faithful to our memory it will not long be faithful to us. Again, suppose I want to look up a certain question in Chemistry. I know that when I go to my room for the morning's work, which chiefly consists of writing, I shall use my fountain pen, which is lying there. I picture myself picking up the pen and noticing the gold nib, which reminds me of alchemy, and that in turn revives the idea of chemistry. I know that when the time comes my memory will present me with the idea I want, because we

have much confidence in each other—my memory and I.

EXERCISE 12. *Eleventh Week.* Fix ideas on twenty or thirty objects in the room. Recall them on the second day by looking at the objects, taking care not to think of them in the meantime.

CHAPTER IX

TO CHANGE NUMBERS INTO SENSIBLE IDEA-IMAGES

IN the year 1648 Stanislaus Mink von Wenusheim wrote a work entitled *Relatio Novissima ex Parnasso de Arte Reminiscentiae*, in the course of which he expounded what he described as "the most fertile secret". This "secret" consists in substituting letters for numbers, and then making words and sentences from the letters. He appears to have been the first mnemotechnist to employ this plan in Europe, and his method was quickly taken up and improved by the famous G. W. Leibnitz, followed by Dr. Grey, M. Aimé Paris, Francis Gourand, Von Feinaigle, Dr. Pick and other great exponents of the mnemonic art. The "secret," however, was by no means new even then, for we find it also in an old Sanskrit work—*Nilakantha's Commentary on The Mahabharata*.

Nearly all persons find it difficult to remember numbers, for these do not in themselves represent sensible idea-images. We can easily imagine two gate-posts, three sides of a triangle, five points of a pentagon, six sides of a cube, but when we get beyond this it becomes

increasingly difficult to see or *imagine* the quantities of even definite things, much more the numbers representing quantities of units of measure. A teacher may "feel" that there are thirty-five or thirty-seven, or forty boys in his class by seeing them in complete or broken groups. Of indefinite things, such as the number of feet in a mile, or the square root of a number, only a specially-constituted mind could form the slightest image. We have therefore to represent such things by mere numbers, co-efficients of measure and quantity, and remember these meaningless numbers. In some of the memory systems meaningless words were made to represent numbers, and many were the barbarous sentences the unfortunate student was called upon to learn; but the later writers adopted more rational methods, and we shall now present an improved system of substitution words representing sensible images instead of mere meaningless numbers.

Now, the numbers 1, 2, 3, 4, 5, 6, 7, 8, 9, 0 are probably used equally in human affairs, but the letters of the alphabet are not, and further some letters are rare at the beginning or the end of words, while others are common; so that the plan of turning numbers into words by assigning letters of the alphabet to each always presents difficulties with certain combinations. After carefully studying several times, from the point of view of number values, all the words in the English dictionary, we adopted the following system, which is a modification, so far as the number equivalents are concerned, of the system of the famous Aimé Paris.

- 1 is represented by t, or d. Words : tea, toe, doe, hot, oat, wad, yacht, youth, thaw, etc.
- 2 is represented by n. Words : hen, knee, wain, neigh, etc.
- 3 is represented by m. Words : yam, may, home ma, aim, etc.
- 4 is represented by r. Words : oar, row, ray, arrow, etc.
- 5 is represented by l. Words : hill, hall, lea, yellow, etc.
- 6 is represented by ch, j, or sh. Words : joy, wish, ash, edge, show, chew, etc.
- 7 is represented by k, g, or ng. Words : cow, hag, egg, hang, ache, etc.
- 8 is represented by f, or v. Words : foe, vow, half, wave, fee, etc.
- 9 is represented by p, or b. Words : ape, bee, hope, web, abbé, hub, etc.
- 0 is represented by s or z. Words : hose, saw, haze, zoo, ass, etc.

The letters h, w, and y, and the vowels, have no number-values in our method, but may be used for word-making wherever convenient.

It will be seen that only the sound of the words is considered, and that double letters are always used as though single, as in "yellow". It is very easy in this way to find a great variety of words representing numbers from 1 to 100; in many cases, such as 10, 14, 15, 41, 50, 51, 57, 70, 85, 90, 91, 94, 95, and 97 one can readily write down about forty words for each number. But when we come to numbers between 100 and 1000,

it is a little more difficult, and the student will find that, while he can readily write down several words for most of the numbers, there will be out of the nine hundred numbers over two hundred which will give him pause. If we choose the number 742, for example, we may readily form corn, crane, green, carrion, grain, acorn, cornea, cranny, granny, crayon, grin, crown, grown, cairn, etc. For 945 we easily discover April, pearl, prowl, broil, parole, peril, parley, barley, barrel, apparel, beryl, brawl, etc. For 114 we readily find daughter, editor, theatre, debtor, auditor, tutor, tooter, dater, etc. But the following numbers, among others, present difficulties : 993, 963, 896, 699, 598, 599, 568, 525, 499, 418, 353, 135. We here for the first time recommend the following plan to be used in all such instances and in any other cases where it may prove convenient : use an adjective and a noun together, and count only the first consonant sound of the adjective. We can then form, for the above numbers, epic poem, prowling puma, (993) ; pure jam, precious gem, (963) ; flowery bush, full page, (896) ; shy baby, cherry-wood pipe, (699) ; lean beef, light puff, (598) ; lively puppy, lead pipe, (599) ; highland chief, yellow sheaf, (568) ; long nail, lower Nile, (525) ; restless baby, ruling pope, (499) ; running thief, rapid dive, (418) ; meek lamb, mortared lime, (353) ; daily mail, hot meal, (135). It is necessary, in all such cases, to make a very lively image to represent the adjective ; vague and general adjectives such as nice, good, bad, pleasant, etc., are to be strictly avoided. Students do not now-a-days need to remember long lists of dates in history and long

series of numbers in science and mathematics, as was formerly the case, so numbers of more than three digits are very rarely needed. In history, one needs only three digits for dates, as the thousands may easily be remembered without any special attention being given to them. When we have settled that we do not want more than three digits in one word we may form word-numbers such as the following : flowing river, (848) ; boomerang, (934) ; book-case (977) ; wild elephant, (558) ; blue lotus, (951) ; young pigeon, (796).

The word-numbers, once formed, can be associated without difficulty in all the ways that we have already indicated, and from them the numbers can readily be drawn.

EXERCISE 13. *Twelfth Week.* Write out all the words of this chapter in numbers. Then make a coherent story from the following word numbers.

859, 77 8 3012, 021 94570 905 1 1 57220, 42 4741
03 170 6 11 21 950 13. 1 41421 3 2 204, 72127
91 2 0595 : 2—6 1 414 107491 2 0 546 843 11 1
751 546 905. 214 13 1 03 859 3201 1 03 995, 07
11, 8 20 2811 14 7214, 1 145 701491 13. 1 57220,
2 1 72144, 021 2 14 495 91 10 94175 : 8—06017 149
11 1 41 8 0 5 20411 9 859, 71 284 9 1 92141 14
462. 20 0 1481 1 07 : 5727 9481. Practice making
up words with groups of three numbers.

The following constitutes the key to the above numbers :

Philip, King of Macedon, sent a prolix epistle to the Laconians, wherein he required some things which did not please them. They returned him an answer, containing

but one syllable: *No*—which the writer described in so large a form that it equalled a large epistle. Another time the same Philip menaced the same people, saying that, if he once invaded their country, he would utterly extirpate them. The Laconians, on the contrary, sent no other reply but this particle: *If*—suggesting thereby that the word “if” was well inserted by Philip, who could never hope to penetrate their region. Hence was derived the saying: Laconic brevity.

CHAPTER X

TO REMEMBER A SERIES OF NUMBERS

A MAN with a good memory for numbers, and thoroughly familiar with their manipulation, might be able, with some effort, to remember a dozen or twenty digits once read out to him; but it would be indeed difficult to find a man who could remember, say, a thousand numbers in that way, though the task of doing so by our method of substitution is simplicity itself. There are, however, several ways of arranging the numbers. One method is the straightforward plan of giving words to the numbers as they come, and then associating these words by the links which we have explained in Chapter III. Thus, we write down, perfectly at random. 9 2 1, 8 4 0, 3 6 5, 7 1 9, 2 8 3, 6 0 5, 1 2, 8 2 3, 7 0 1, 5 6 2, 3 9 4, etc. After a little inspection we may form from these numbers the following words: bind, freeze, marine shell, cool dip, infamous, hisel, cotton, venom, ghost, legion, empire, etc. These words are almost the first that occur to us, and are by no means necessarily the best. We use them to show what can be done off-hand, though it is better generally to go over the numbers and choose the

words more carefully when there is time. We may link the words by intermediaries, where necessary bind (fix), freeze (water), marine shell (sea), cool dip (mixed bathing), infamous (murder, weapon), chisel (hard, soft, cotton-wool), cotton (cotton-thread), stringy, snake), venom (fear), ghost (dead, dead warriors), legion (Roman legion), Empire, etc.

Another method was "discovered" by F. F. Gouraud and christened by him "number metamorphosis". His metamorphoses are: for the figure zero, hero; for the number one, a wand; for the number two, a tooth; for three, a tree; for four, a fort; for six, a sexton; for eight, hate; and so on. Each of these may stand as a basis for ten numbers embodied in a sentence, and our author showed how to apply it to keeping in mind the ratio of the circumference to the diameter of a circle to the extent of 154 decimals, a feat which he performed by learning sixteen simple sentences. The first nine numbers are 3 1 4 1 5 9 2 6 5, for which he formed the ridiculous sentence, "My deary dolly, be no chilly." This, the first set, is the "hero" set, and must be linked with that word by the supposition that a hero is uttering the sentence. The sentences are difficult to make, and the linking is decidedly primitive, but apart from these elements the scheme of "metamorphosed" key-numbers proves very useful. It may, for example, be used as providing starting-points for a series of our number-words, which may very readily be linked on to it. We may choose thirty numbers, as before 9 2 1 8 4 0 3 6 5 7, 1 9 2 8 3 6 0 5 7 1, 2 8 2 3 7 0 1 5 6 2, and remember them in three sets of ten, each preceded by one of the

key-words. The digits, from the first to the tenth, will be under the ægis of "hero," the eleventh to the twentieth under "wand," and so on. This method facilitates the location of the digits, and enables one to pick out a number required without the trouble of counting along the whole series. In practice, we may make three sets: *hero*, bone, devour, smash, leg; *wand*, tap, knife, images, locket; *tooth*, hen, fan, hammock stall, chain. These could be connected where it is necessary, by: (mighty dead), (hungry dog), (crunch), (broken leg); (blow, cut), (gleaming, mirror), (portraits); (beak), (feather), (swing), (rest), (rope).

A third plan, which we prefer to Mr. Gourand's, is to select number-words for key-words, instead of homophones; for example, instead of *hero*, ice, sea, saw, ass, sow, sue, ease, essay, hose, house, or any other zero word; instead of *wand*, tea, tie, add, oat, toe, height, mouth, or any other word standing for the number nine. In this case, it is easy to find a word suited to the series which it is required to begin.

It will now be seen that the task of remembering dates is a very easy one. All that needs to be done is to take the last three digits of the date, form a word from them, and connect this in turn with the idea of the event by our link method. There are, of course, other devices useful to students, such as that of making charts of centuries, divided into squares for each year or ten years, and fixing small symbols in each square to represent the happenings of the period. We will content ourselves with one or two examples of the link method: Foundation of the Theosophical Society,

1875—875=vehicle; the Theosophical Society is vehicle for carrying the spiritual life from its centre all over the globe. Queen Boadicea raises an arm against the Romans and kills 7,000 of them, in the year A.D. 67—check. King Arthur, famous for his powerful resistance and victories over the Saxons, A.D. 514—leader. Queen Elizabeth ascended the English throne, 1558—fond of praise—lady love.

EXERCISE 14. *Thirteenth Week.* Commit to memory a series of about four hundred numbers, or about one hundred events, with their dates.

CHAPTER XI

TO REMEMBER WORDS AND SOUNDS

WE have already, at some length, considered the familiarisation of the unfamiliar so far as the process is concerned with forms. We have now to do the same with regard to sounds. Words of a foreign language with which we are not acquainted are for us mere

sounds, of the type \uparrow
O, and to familiarise

them, to make them \uparrow
 \Leftarrow O \Rightarrow , we must discover in

them a likeness to a sound which has for us a meaning, that is, a word. This can be done by studying the true derivation, relating it to a familiar English word or, when that is not available, by finding an artificial "derivation" through mere likeness of sound. This latter method applies not only to human language, but also to music, to the cries of animals, the songs of

birds, the various sounds that insects make, the wind, the waves—to all the sounds of art and nature.

What has sometimes been called improper derivation is perhaps better designated by the term “fancy”. The student who wishes to learn a large number of foreign words will have a light and happy task before him when he betakes himself to the method of fancy. First of all, if you are free to choose your words, look over your vocabulary and learn all the words that clearly resemble English words, such as, for example, in German :

Wunder (wonder), Vater (father), Nord (north), Sohn (son), Schuh (shoe), Ebbe (ebb), Ende (end), Ochs (ox), Dank (thank), Eis (ice), Wasser (water), Donner (thunder), Ohr (ear), Krone (crown), Dorn (thorn), Schulter (shoulder), Seele (soul), Kuh (cow), Strom (stream), Garten (garden), and hundreds of others. Can you not already read : das Gras im Felde ist grün ; ein Mann kam in den Garten, und sah das Haus in Feuer ; das Vaterland hat brave Söhne ?

If, however, the student is compelled to follow the course in the order of a prescribed textbook, he will have to take the words as they come, and will at once find many which do not appear to resemble English words. He takes the first word, Saal, room, and repeats : Saal, room, Saal, room, Saal, room, until his head buzzes ; then he goes on to Schutz, protection, Schutz, protection, Schutz, protection, until his brain throbs ; and then Schön, beautiful, Schön, beautiful, Schön, beautiful, until his mind whirls ; and then Trennung, separation, Trennung, separation,

Trennung, separation, until he nearly drops from his seat, and yawns, and rubs his eyes, and wishes—oh, how longingly—that it was time to go out and play cricket; and he looks up at the clock and sees there is still twenty minutes to playtime—oh, endless and unrelenting time—and then he tries to fix his burning eyes upon his book again, once more to grind out Fürchterlich, terrible, Fürchterlich, terrible, Fürchterlich, terrible, once more to swoon, once more to look at the clock—oh, mercy, nineteen minutes more!

Do not grind like that, dear boys! Take the word Saal; look at it; repeat it three times without thinking of the meaning. Now think of a room. Do not think merely the word room, but think of a room that you know. Now try to find a familiar word that sounds something like Saal. You might think of sale, salt, saloon—ah, that is the word, Saal is like saloon, which is a room. Then repeat Saal three times while thinking of the room. Then take Schutz; repeat it three times, thinking only of the sound. Then think that Schutz means protection. Think of some words that sound like Schutz, say shut or shoot. Do you not protect a thing by shutting it up? Do not the soldiers, who shoot, protect us? Once more repeat the word three times, thinking of the idea. Schön is like shining, beautiful; and for Trennung, think of a trench or chasm which separates, separation; and for Fürchterlich, fearlike. Always repeat three times, and always think of the connection, such as: the soldier, who shoots, protects us against our enemies.

The words that must be learned are not always quite so easy as this, but if you practise this like a puzzle-game for some time, you will be able to find something for every word. Always take the accented syllable of the word that you are going to learn as part of the similar word that you are going to make. Let us take some difficult words from Sanskrit, as an illustration. They are difficult because they are very unfamiliar, and because they sound somewhat different from English words. काम, kāma, which means passionate desire, sounds like calm, and you might think: when a man gives way to passionate desire he is not calm. कर्म, karma, which means action, or the law of cause and effect, sounds something like cream, crime, crumb; and you may say: when a man commits a crime the law of karma will make him pay back; or, cream is made into butter by constant motion, or action; or again, every little thing has its cause, even the falling of a crumb of bread from the table. शरीर, sharīra, which means body, sounds like sharing: because we have bodies we can communicate with others and share our knowledge with them. मनस्, manas, which means mind—man has mind. प्राण, prāna, means vitality, and you may think of a high-spirited horse prancing along, full of vitality. सूर्य, sūrya, means the sun, and it sounds something like sower, and surely the great sun gives life to all the seeds that are sown in the ground, and indeed is the original sower of all things in the Solar System. But really, these are too easy; let us try something more difficult. इन्द्रिय, indriya, which means sense-organ, sounds like

india-rubber, which has no sense! जगत्, jagat, the universe. The universe is jogging along all right. राज, rāja, a king. A king is nearly always rich. भक्ति, bhakti, devotion. The devotee bends his back when worshipping. सौन्दर्य, saundarya, beautiful and graceful. A sound and healthy body is beautiful and graceful. नाग nāga, snake. Always catch a snake by its neck. क्षीर, kshīra, milk. The wool that is sheared from sheep is as white as milk. क्षत्रिय, kshattriya, a warrior. A warrior shatters his enemies. Expressing them in briefer form in which our linkages may replace the dashes: हस्त (hasta)—*spear*—hand; हर्म्य (harmya)—*harm*—*luxury*—palace; पाद (pāda)—*pedal*—foot; कर्ण (karna)—*cornea*—*eye*—ear; ग्राम (grāma)—*gram*—*agriculture*—village; काम (kāma)—*calm*—*excitement*—passion; पुष्प (pushpa)—*bush*—flower; मधु (madhu) *mad*—*intoxicated* bear—*honey*—sweet. I have looked through my Sanskrit dictionary for half an hour, and have failed to find one word that could not soon be resolved in this way.

We might take words from Latin or Greek, or, I think, any European language, and we should find them much easier than the Sanskrit. You will discover that by this method you can happily and easily remember quite a large number of words in the course of an hour, and your memory will not be burdened afterwards by all the fancies in which you have indulged; yet you will remember the words better than if you had learned them by rote. As a matter of fact, you really get to know the words as usable things when you read a number of books in the language, or practise

conversation in it; the real difficulty which you have to encounter at the beginning is that of introducing the unfamiliar words to your mind. To show how even the most difficult words can be dealt with, we may form uncouth words such as the following at random. Let lubagart be synonymous with tametac, emattle with revilog, ebpetag with thodge, nadard with smecia. We might associate them thus: lubagart—*lovely cart—market—fruit—tomato—tametac*; emattle—*metal—rifle—revilog*; ebpetag—*potato—cottager—cottage—thatch—thodge*; nadard—*adder—field—labourer—smock—smecia*. If for the sake of exercise, or for amusement, you wish to remember a long uncouth word, such as hturtnahtrehgihnoigileronsiereht, you can easily do so by forming a series of words such as the following: hat; upper ten; ah; tower; eh; gari (cart); hen; obi (magic); gai (cow); love; rao (king); ness (nose); isle; rope; height. Thus one can do a thing that most people would think well-nigh impossible for an ordinary brain; though, like many things more dignified and respectable, it has no particular value, beyond the exercise that it involves.

The remembering of poetry also involves a good deal of word-memory in addition to understanding. Here we have to remember not only ideas and facts, but also their definite order, and the exact words in which they are clothed. Rhyme and metre are of great assistance to the memory, and an old-fashioned memory such as you find frequently in India, where for thousands of years teaching and ritual have been handed down

from generation to generation orally, by its peculiar passivity and its habit of repetition, can easily retain many verses and formulæ without necessarily understanding their meaning. In the rapid changes of modern life, however, memory has become more dependent upon acute observation, and the classification or orderly arrangement of thoughts and ideas, serving a type of mind which constantly finds itself faced with new circumstances, requirements and possibilities. In the East one sees people sitting on the platforms of their little porches placidly turning over and over in their minds the thoughts they have revolved a thousand times before, often in the very words, with the very images that have been used for thousands of years, without changes; while in the West the thinker leans back for a time in his chair and endeavours to pierce the veil of a newly-risen doubt, to find out a new working of old laws, a new arrangement of old material, a new adaptation of old powers, a new aspect of old principles.

In order to remember the exact words in which a poem is written, a good plan is to learn the first word, the principal word and then the last word, of each line, after carefully studying the piece and making familiar the ideas which it contains. In committing the piece to memory learn the first line; put it out of mind; learn the second; repeat the first and second together; put them out of mind; learn the third; repeat the second and third together a few times, and so on. In the course of learning the line, ask yourself every question that you can upon it, and answer each question in the

full words of the poem. Let us take an example from Wordsworth's famous *Ode to Immortality* :

Our birth is but a sleep and a forgetting ;
The soul that riseth with us, our life's star,
Hath had elsewhere its setting,
And cometh from afar.

Note the words "our" and "forgetting," then "birth". Then question : What birth? and answer : *Our* birth is but a sleep and a forgetting. Question : What about our birth? Answer : Our birth *is* but a sleep and a forgetting. Question : What is our birth? Answer : Our birth is but a *sleep* and a forgetting. And so on. If it is required to remember prose passages, exactly the same method may be adopted, this time, however, selecting convenient portions to represent the lines. One small example will suffice, from *At the Feet of the Master* :

Because you try to take up higher work, you must not forget your ordinary duties, for until they are done you are not free for other service. You should undertake no new worldly duties ; but those which you have already taken upon you, you must perfectly fulfil—all clear and reasonable duties which you yourself recognise, that is, not imaginary duties which others try to impose upon you.

In this we might take as lines from "because" to "work," from "you" to "duties," from "for" to "service," and so on, following the method suggested for poetry. Another method is to build up the piece gradually, repeating all the previous portions of the sentence with each new addition : Because what? Because you. Because you what? Because you try. Because you try what? Because you try to take up.

Because you try to take up what ? Because you try to take up work. Because you try to take up what work ? Because you try to take up higher work. Because you try to take up higher work—what ? And so on.

It is always important also, before taking up the piece you are learning at any time, first of all to repeat as much of it as possible from memory, for the habit of looking up a thing you have once tried to commit to memory has an immediate and distinctly weakening effect.

EXERCISE 15. *Fourteenth and Fifteenth Weeks.* Repeat *Exercise 7*, but use foreign words, of one or more languages, instead of English. The words, before being made into a list, should be familiarised by the methods of this chapter.

EXERCISE 16. *Fourteenth and Fifteenth Weeks.* Learn eight lines of poetry every day, or eight lines from any well-written book ; employing, in either case, the methods herein advised.

CHAPTER XII

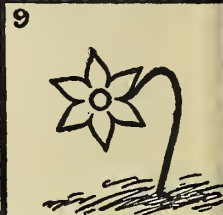
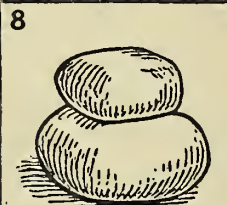
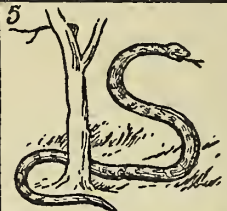
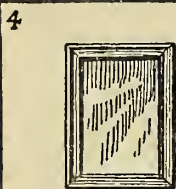
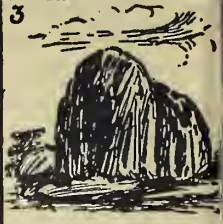
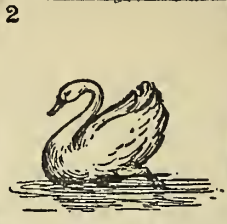
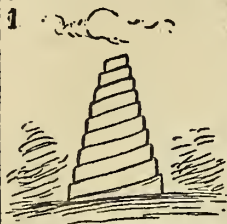
THE PICTURE-SYSTEM OF THE ANCIENTS

IT is related of the Greek poet Simonides, who lived in the sixth century, that he was one day called out from a feast, and while he was away the roof of the hall fell in upon the company, mangling their bodies beyond recognition. The poet, however, was afterwards able to identify the feasters, because he remembered the positions in which they had been sitting when the calamity befell them. It is said that this suggested to him the now famous mnemonic device of fixing unfamiliar ideas in familiar places in a room, a house, a street or a town.

If we think of the rooms in the house in which we live, there will be no difficulty in recalling twenty or thirty familiar things in each ; if we think of other buildings which we constantly enter or pass, with them also we shall remember thousands of details ; and when we extend the thought to familiar streets and towns the details become altogether too numerous to calculate. Suppose, then, we enter our house at the front door and number all the objects we see in turn, the door-mat (1), the brass step (2), a picture (3), a hatrack (4), an

umbrella stand (5), and so on, right through the house ; we have at once a basis for remembering a large number of things in order. Now, in the discourse of Simonides, mentioned in Chapter VII, he might place his crown on the door-mat, his coin on the brass step, his ship in the picture, a statue of Minerva on the hatrack, and so on ; and thus avoid missing any of them in the course of his speech or debate. Of course, in our system, we should prefer to associate the symbols with the numbered objects by the link system of Chapter III, thus : crown—*head*—*feet*—door-mat ; coin—*metal*—brass step ; ship—“ *The Fighting Téméraire* ”—picture ; Minerva—*laurel-wreath*—*hat*—hatrack. By this means it is possible to remember a vast number of things, without the least danger of missing any one of them.

This process of locating ideas in familiar objects underwent numerous changes in the course of the centuries that followed, until we come down to the adaptation of it made by Gregor von Feinaigle. In this later development an imaginary house is taken as having a number of rooms, and each room as having fifty places, arranged in the following manner : the floor is divided into nine equal squares, and each wall is divided similarly into nine, with, however, a tenth in the centre above it upon the ceiling, while another square in the centre of the ceiling makes the fiftieth square in the room. You enter at one corner, and find before you the nine squares on the floor ; then, on your left hand is a wall with the tenth square on the ceiling above, and squares 11 to 19 on the



wall ; in front of you a similar set from 20 to 29 ; opposite you on the right another, from 30 to 39 ; beside you on your right another, from 40 to 49 ; while number 50 lies above you in the middle of the ceiling. Once having fixed your walls, it is better to take a walk round the room in imagination, rather than merely to stand in the corner and survey it in the manner described. It now remains to people the apartment, and this may be done by either form or number-word. Our illustration gives the method by similarity of form, according to which, in each place, you fix in the imagination not simply a picture, but an object having some appearance of the number of its square or place. We have :

- | | | |
|------------------------|---------------------|---------------------------|
| 1. The Tower of Babel, | 2. A Swan, | 3. A Rock or Mountain, |
| 4. A Mirror, | 5. A Snake, | 6. The Horn of Plenty, |
| 7. A Glass-blower, | 8. A Loaf of Bread, | 9. A Flower or Narcissus, |
| | 10. Mars. | |

It is necessary to commit these thoroughly to memory, but the task is an easy one, because the objects resemble the numbers they represent. We show only ten numbers, but the reader who wishes to make good use of the method should construct for himself two "rooms," with numbers up to 100. He may, if he chooses, instead of using these forms, people his "spaces" with any objects named by number-words corresponding to them, such as (1) head, (2) hen,

(3) home, (4) oar, (5) hill, (6) hedge, (7) cow, (8) ivy, (9) bee.

If at any time, for purposes of answering points in debate, for remembering things seen on a journey, or indeed for any occasion on which a series of objects or ideas are to be retained in mind, a few sets of numbers are suddenly and temporarily required, a simple plan is to construct an alphabet on the spur of the moment, leaving out the letter X, and thus obtaining a set of twenty-five objects, say animals, or cities, or human occupations, or countries, or natural objects, or articles of clothing, or indeed almost anything. Some may think this is rather like the things they did in early childhood; but yet our memories were not so very bad in our young days.

The advantage of the picture-system over that of merely linking together a long string of things is that you can at once pick out any one of the things you want from it without disarranging the series, and without having to repeat the whole series from the beginning. Its disadvantage is that more ideas are imposed upon the mind than are quite necessary for understanding the things to be remembered. Yet that disadvantage is small, and the system does enable one to do some things that would be impossible by the link method, as we shall show in a later Chapter. With its aid some most astonishing number feats and calculations can be performed.

Some such system as this was almost universally employed by those who from time to time appeared in middle age Europe, performing memory feats consisting

of repeating vast numbers of words and numbers once read out to them. One of the most striking examples of this use of the art was a certain Lambert Schenckel, who travelled over the chief countries of Europe in the sixteenth century, and won honour and praise everywhere, though in his earlier years he, like many others, was persecuted for supposed traffic with the devil. A pupil of his, Sommer, writes in a Latin treatise :

A lawyer, who has a hundred or more causes to conduct, by the assistance of my mnemonics may stamp them so strongly on his memory that he will know in what manner to answer each client, in any order and at any hour, with as much precision as if he had but just perused his brief. And in pleading, he will not only have the evidence and reasonings of his own party at his fingers' ends, but all the grounds and refutations of his antagonist also. Let a man go into a library, and read one book after another, yet he shall be able to write down all that he has read, many days after, at home.

The simple secret is : link each idea, sentence, image—whatever you want—to one of the objects in your “house” in its turn.

EXERCISE 17. *Sixteenth Week.* Construct a “room” of fifty places, and commit it thoroughly to memory, at the rate of ten places each day. Walk round the room in imagination and survey the objects in the places.

EXERCISE 18. *Seventeenth Week.* Write down fifty words and numbers below 1000, associate them with the objects in the spaces, and recall them the next day. Repeat this each day.

EXERCISE 19. *Eighteenth Week.* Write down ten sentences, not too long, sum each up in one or two

words, associate these words so that you fix one sentence in each space, and thus commit the ten sentences to memory. Do this each day for five days, and on the sixth and seventh days repeat the whole fifty sentences.

CHAPTER XIII

TO PREPARE ARTICLES, SPEECHES AND ANSWERS IN DEBATE

WE presume that no one will venture to write an article or deliver a lecture who has not studied the subject of which he intends to treat. It is, however, well known that even when that has been done a writer or speaker often forgets, at the moment when he needs them, several points and illustrations which he had intended to present in connection with his subject. This can be to some extent, if not wholly, avoided by the following means.

Supposing that the author or speaker has considered the occasion of his article or speech, and the matter at his command, he will have selected four or five main branches of his subject to be expounded in a pre-determined order. These branches he can summarise, each in a word or two, and then fix his key-words or headings in the parts of the hall in which he intends to speak or in the room where he will write. If he does not know the hall, he may place his headings in a familiar "house" such as is described in the previous chapter.

The next thing for him to do is to put down the headings one by one and extract from the memory every idea that he can in connection with each of them, by the process of expansion of ideas suggested in Chapter VI. This will not only prevent possible oversight of important details, but also provide suggestions for illustrations and similes of all kinds. When this is done two or three selected sub-headings and illustrations may be placed under each head, each summed up in a word or picture, and these associated with the places in the "house". In all such cases as these it is incomparably better to use the ancient system for memorising, than to place the sub-headings in a list connected by the link system of Chapter III. Of course, the link system should be used jointly with the imagination, for fixing the required points in their respective places, so that when the author or speaker is approaching the end of one of his topics he has only to turn his attention for a moment to the next "square," and all that he wished will spring up before his mind.

In the course of debate one may desire to note the points of an opponent's speech with which one wishes to deal in turn. One way is to write these on a piece of paper and then turn to the notes one by one; but this generally has rather an enfeebling effect. Merely to memorise them is not very satisfactory either, for it nearly always involves a certain amount of mental preparation of the second point while one is still speaking about the first. A good plan is to fix your points as they occur, in your "house," or, better still, upon the

different parts of the person with whom you are debating. Each point can thus be fixed and left to take care of itself, while the mind is left free to consider other matters as they come up. It also gives one the advantage of being able to keep one's eyes on one's opponent throughout the whole of the debate.

EXERCISE 20. *Nineteenth Week.* Prepare a small article or address in the manner indicated, memorising the points in some selected "locality".

CHAPTER XIV

ON STUDY AND THE FIXING OF IDEAS

IN the course of our study of any complex subject, we have to deal with such a vast mass of ideas that it is not practical to learn them *seriatim*, either by associating them successively by means of the links, or by placing them in the "squares" of a picture-system. We have indeed, having first mastered the meaning of our subject, to present it to the memory in blocks or groups. In counting a large number of things, a child would count them one, two, three and so on, but an expert counter would take them in groups of four, five, or more, grasping a number of them in one perception or thought. This is much what we need to do for great success in study—divide the subject into a comparatively small number of groups and then treat each group separately as an object of study.

In the study of any subject it is a quite impracticable plan to give equal importance and attention, as many try to do, to each point as it comes up. When you have sorted out the groups, pick out the principal

fact in the group and make a thorough study of that, committing its details to memory, and then reproduce it from memory every day for a week. As to the subsidiary facts in each block—a mere careful reading of them with reference to the main fact will be sufficient to impress them strongly on the mind, and if, at any time, you are called upon for an account of these minor things, you will be able to recall all about them by thinking first of the main fact which you thoroughly know, and mentally enquiring their relation to it.

For example, in History, one would study thoroughly the most prominent monarch in each dynasty and the principal fact, event or personage in each reign, and then link the reigns together in a series or plant them in order in a "house": or, in Chemistry, one would study thoroughly Chlorine as one of the Halogens, and Sodium, and Calcium, and such typical elements thoroughly, and associate other members of their series with them by an after-reading of a far less searching kind. This process is not unlike that of finding our way through an unfamiliar town or country-side. We look out for prominent landmarks, and take particular notice of them, and afterwards use these as guides through the mass of little-remembered intermediaries.

The secret of success in the study of complex subjects is to take one thing at a time, get hold of it firmly, store it away out of sight and pass on to the next. When the second idea is quite clear, bring the first out again and add the two together. Never try to put more than two together at one time. Many a student

fails because he will not take one thing at a time and form a clear idea of that before passing on to the next. I have known students to grab feverishly at a number of ideas at once—and invariably fail to grasp any of them clearly. Not feeling sure of one fact which they are supposed to have learned, they try to keep an eye upon it, so to speak, lest it should slip away while they are learning the next; and the result is that neither is properly understood or learned. There is a little story of an Irish farm labourer who was once sent by his master to count the pigs in the yard. After a time, he came back scratching his head and looking sorely puzzled. "I counted ten of them," he explained, "but there was one little fellow who ran about so fast that I could not count him at all, at all." It is a fact that unless we make our ideas stand quiet, and look over them singly, they run about so much that we cannot grasp them at all, at all. It is necessary to get each new idea into a corner from which he cannot escape, and then examine him and watch him very carefully indeed. If the student will not do this, he is like a person trying to run with a big armful of oranges; one falls over; he makes a desperate clutch at it; another goes over on the other side; and presently all the oranges are rolling on the ground.

It is best to make the new idea as simple as you can at first, so that it may easily add itself to knowledge already existing in your mind. In every case in which you are learning from a book it is a good plan to simplify the sentence you are studying by taking away

all the qualifying words, making a mental picture of the essential idea, and then adding to this image one by one all the various qualifying attributes. For example, you read of the discovery of Lithium :

In 1817, Arfvedson, working in Berzelius's laboratory upon a petalite from Uto, Sweden, discovered an alkali which he found to differ from those already known in the following particulars : (1) in the low fusing points of the chloride and sulphate ; (2) in the hygroscopic character of the chloride ; and (3) in the insolubility of the carbonate.

Simplify the idea : Arfvedson discovered an alkali. Make a clear mental picture (not in words) of Arfvedson in the act of discovering an alkali. Repeat the idea several times until it becomes familiar. Then add to it the idea that the discovery took place in a laboratory. Picture the discovery in the laboratory ; add the idea that it was Berzelius's laboratory ; next give the whole idea the aspect of 1817 ; the date may easily be remembered by noting that 18 is followed by 17, which is one less. Get the whole idea clear that, in 1817, Arfvedson discovered an alkali in Berzelius's laboratory.

How did he make the discovery, and what exactly did he discover ? He was working in Berzelius's laboratory in 1817 upon a mineral silicate named petalite from Uto, Sweden, when he discovered the alkali. Be sure that your idea of an alkali is clear, and recall to mind familiar examples, as those associated with sodium and potassium. He found that it differed from the known alkalis—study them together ; compare them carefully, noting the resemblances and

differences. Finally repeat the whole idea from memory, and thus slowly work sentence after sentence right through the textbook.

We have tried to show how each sentence must be worked upon with thought, not simply read and repeated as a whole; how the qualifying words, phrases and sentences must first be removed and then added again bit by bit. The aim is to transfer the form of words from the printed page, not into a form of words in the mind, but into a living mental image which its owner can express in any words or from any point of view he may choose. The image may be an inner visualisation, audition, or other sense imagination of the object, or a simplified or symbolic picture, such as those we discussed in Chapter VII. Most students, I feel sure, will find it more difficult to remember: "The period of Charles I was one of continual parliamentary, religious and martial strife," than to make and keep a small mental picture of the handsome King, with an excited parliamentary group on one hand and a body of bible-carrying Roundheads on the other.

When such picture-ideas have been made they should be compared with each other, two at a time, in accordance with the nine natural relationships which we have classified. Suppose, for example, that we have studied the reign of Charles I, and are familiar with it, and we now wish to study that of James I, we may make another little picture of the authoritative monarch sitting upon his throne surrounded by his favourites in succession; and then go on adding details to each picture, enquiring in what respects, with

reference to the whole and to each detail, they resemble, differ from, and contrast with each other, in what respects they are *Sim.*, *Con.*, *Coeæ.* or *Suc.*

Let us take a simpler instance from elementary geography. Suppose you are about to study the geography of India and you already know quite well that of the United Kingdom, France, or Germany. As you come to each point that is new to you, compare it with a similar point in the geography of the country that you know well. For example, the lower part of India is a triangle with the point to the south; so is England also roughly a triangle, but with the point turned to the north; India is bounded on the north by a long range of mighty mountains, whereas England is bounded on the north by a very short range of small mountains; the large rivers of both countries flow into seas on the east and the west, but in England the rivers, like all the other natural features, are comparatively small; on the west of India we have a projecting nose (Kathiawar), just as Wales sticks out on the west of Great Britain. So you may proceed to compare the numbers, sizes, shapes and positions of rivers and mountains with those you already know; and go on to compare the political divisions of the countries, the natural products, the religious, the general and local governments, with those that are familiar to you. In all cases it is better not to try to compare two unfamiliar things, but to compare the new unfamiliar fact with an old familiar one. All learning consists in adding something that you did not know to something that you do; nothing can suddenly heave into your

mind a new piece of knowledge which has no relation to anything that you already know.

No doubt it will seem easier and quicker to many students to read over and over again the portions of their textbooks that they require, in the hope that some of the ideas they thus gain will stick in the mind; and perhaps there is some excuse for the student, who in these days is so terribly harried by a vast and varied host of teachers, each with his own coagulation of indigestible mental bread, if he finds himself too tired to think. Yet the fact remains that the only knowledge that is really retained for long is that which has been acquired with some effort—a sudden and incisive effort of perception, or a long, slow and deliberate pondering of the facts or ideas.

EXERCISE 21. *Twentieth Week.* Compare carefully and fully each day a number of large complexes in pairs, such as a forest and a park; a park and a mountain-range; mountains and the sea; the sea and the sky; a house and a factory; an elephant and a whale; a law-book and a textbook of science; the seen and the unseen; the Bible and the Koran; a poem by Tennyson and one by Wordsworth.

CHAPTER XV

INTERESTING EXPERIMENTS

WE now suggest a few practices of different kinds which involve a combination of the methods so far prescribed, and provide the very best of exercise preliminary to a course of exercises in concentration of mind.

Let us write down at random a number consisting of thirty digits, and divide it into hundreds, thousands, millions, thousands of millions, trillions, thousands of trillions, quadrillions and so on, thus :

| Thousands of quadrillions | Quadrillions | Thousands of trillions | Trillions | Thousands of billions | Billions | Thousands of millions | Millions | Thousands | Hundreds |
|------------------------------|--------------|---------------------------|-----------|--------------------------|----------|--------------------------|----------|-----------|----------|
| 584, | 763, | 250, | 946, | 385, | 971, | 285, | 631, | 294, | 765 |

In the ordinary way we should read this number five hundred and eighty-four thousand seven hundred and sixty-three quadrillions, two hundred and fifty thousand nine hundred and forty-six trillions, three hundred and eighty-five thousand nine hundred and seventy-one billions, two hundred and eighty-five

thousand six hundred and thirty-one millions, two hundred and ninety-four thousand seven hundred and sixty-five. Now, if this were read out to us slowly we could easily remember it by a string of words, thus: Lover; gooseberry jam; nails; birch; muffle; packet; novel; shy maid; neighbour; cudgel; and from these we might readily repeat the numbers, either forwards or backwards, days or even weeks after hearing them.

Suppose, however, that the number is read to us out of order, say thus: 971 billions; 250 thousands of trillions; 765; 631 millions; 584 thousands of quadrillions; 946 trillions; 294 thousands; 285 thousands of millions; 763 quadrillions; 385 thousands of billions—could we then repeat them in proper order and pick out, in a moment, any number, such as the seventh or the nineteenth, counting from either end? At first sight this looks impossible, but by the following method the feat is perfectly simple.

Consider the “room” in Chapter XII, and call to mind the first ten objects in it. These are: (1) The Tower of Babel; (2) A swan; (3) A mountain; (4) A mirror; (5) A snake; (6) The Horn of Plenty; (7) A glass-blower; (8) A loaf of bread; (9) Narcissus; (10) Mars. When we hear “971 billions” we associate pocket, bucket or packet with the Horn of Plenty by *Sim.*; 250 thousands of trillions calls up, say, knolls, which we link with the mountain by *Con.*; 765 awakens cudgel, easily joined to Mars by *Coex.*; 631 millions suggests shining meadow—cornfield—wheat—bread, *Anal.*; 584 thousands of quadrillions recalls lever, an instrument used in building operations, connected with

the Tower of Babel by *Coex.*; 946 trillions suggests apparition, associated with mirror by *Coex.*; 294 thousands calls up handsome appearance, associated with flower by *Anal.*; 285 thousands of millions suggests new vial connected with the glass-blower by *Coex.* or *Suc.*; 763 quadrillions calls up Cashmere—soft shawl—swansdown—swan; 385 thousands of billions leads to mortal evil, connected with snake by *Suc.* It is now easy to repeat the series by going round our “room,” and if we are required to pick out, say, the tens of thousands of trillions, we can do so quickly, knowing that it must be the middle digit of the third place—mountain; knolls; 5.

Those who practise this method will know the value of it. Although the methods of “placing” and “substitution” seem at first sight a little childish, nevertheless the very use of written and spoken numbers and words amounts really to exactly the same thing—the substitution of convenient and handy forms for cumbrous ones. When, in this practice, we think of a nail or a cow, we do not think about them as such, but as 25 and 7 respectively, and thus we simplify the process of thinking in numbers.

Another excellent exercise is to multiply a number consisting of five digits by one of four digits mentally, with the eyes closed and without writing or making any signs. If we find it too difficult a feat of concentration to do this without extra aid, we may once more attempt it, using number words and localities. Suppose, for example, you wish to multiply 58763 by 7948, you may first fix these numbers in mind by

laughing Jim, cap roof, and then fit your working into one of the following plans :

| | | |
|---|--|---|
| Tower of Babel (1) 401 roost | Swan (2) 074 screw | (3) |
| Mirror (4) 25 Nail | Snake (5) 053 slim | Horn of Plenty (6) 2 wine |
| Glass-blower (7) 7 egg | Bread (8) 688 shrill fife | Flower (9) 25 annual |
| (addition of above) Mars (10) 423 miner (carry 1) | Pillars of Hercules (11) 143 dream | David and the Lion (12) 114 theatre |
| | (addition) 840 serf (carry 2) | (addition) 764 urging |

Answer : urging, serf, miner.

For those who can readily visualise the original terms the following method will be easier :

| | | | | | | | |
|----|---|---|---|---|---|---|------------------------|
| 1. | $8 \times 3 = 24$ | . | . | . | . | . | arrow—Tower of Babel |
| 2. | $8 \times 6 + 2 = 50 + 4 \times 3 = 62$ | . | . | . | . | . | hen—swan |
| 3. | $8 \times 7 + 6 = 62 + 4 \times 6 = 86 + 9 \times 3 = 113$ | . | . | . | . | . | mass—mountain |
| 4. | $8 \times 8 + 11 = 75 + 4 \times 7 = 103 + 9 \times 6 = 157 + 7 \times 3 = 178$ | . | . | . | . | . | face—mirror |
| 5. | $8 \times 5 + 17 = 57 + 4 \times 8 = 89 + 9 \times 7 = 152 + 7 \times 6 = 194$ | . | . | . | . | . | rattlesnake—snake |
| 6. | $4 \times 5 + 19 = 39 + 9 \times 8 = 111 + 7 \times 7 = 160$ | . | . | . | . | . | scatter—Horn of Plenty |
| 7. | $9 \times 5 + 16 = 61 + 7 \times 8 = 117$ | . | . | . | . | . | curve—glass-blower |
| 8. | $7 \times 5 + 11 = 46$ | . | . | . | . | . | shortbread—bread |
| 9. | 4 | . | . | . | . | . | rose—narcissus |

Answer : rose, shortbread, curve, scatter, rattlesnake, face, mass, hen, arrow.

EXERCISE 22. *Twenty-first Week.* Practise remembering and recalling one set of thirty numbers, and repeating the previous day's results, each day. In addition, work mentally a multiplication of the kind described in this Chapter, on days when time permits.

CHAPTER XVI

THE INDIAN ASHTĀVADHANA

THE wonders of India are related endlessly by travellers from the West. They range from the Taj Mahal to the Temple of Madura; from the silent Caves of Elephanta to the babel of Puri; from the beggar-saint to the magician-rogue; from the cloud-buried snows of Himavat to the scent-laden Island of the Southern Sea; from the blood-stained goddess Kali to the silver-tongued Lord Sri Krishna, Teacher and Lover and Refuge of the millions of devas and of men.

Among these wonders are the pandits with phenomenal memories. Colonel Olcott, the distinguished founder of the Theosophical Society, writes of these in *The Theosophist* for January, 1886:

Among the acquirements now exhibited by Brahman pandits is that of Ashtāvadhānam, literally, the art of fixing the mind upon eight things at once. We elders all recollect the sensation caused throughout western countries by the feats of Paul Morphy, the Louisianian youth, who played eight games of chess blindfolded with an equal number of the best chess-players of the world. It was regarded as something so phenomenal as to provoke great discussion upon the possible resources of the human brain. Whatever

amount of general intelligence Morphy may have had, I believe his whole mind was seriously weakened by *excessive indulgence* in this exhaustive cerebral overstraining. The same result is found to happen among the Brahmans who practise Ashtāvadhānam, as I am told by two of their number who have kindly shown me their powers.

On one occasion

The Acharya simultaneously kept in mind and did the following eleven things :

- I. Played a game of chess, without seeing the board.
- II. Carried on a conversation upon various subjects.
- III. Completed a Sanskrit sloka from the first line given him.
- IV. Multiplied five figures by a multiplier of four figures.
- V. Added a sum of three columns, each of eight rows of figures.
- VI. Committed to memory a Sanskrit sloka of sixteen words—the words being given to him out of their order, and at the option of the tester.
- VII. Completed a “magic square” in which the separate sums in the several squares added up to a total named, whether tried horizontally or vertically.
- VIII. Without seeing the chess-board, directed the movements of a knight so that it should make the circuit of the board within the outline of a horse traced on it, and enter no other squares than those.
- IX. Completed a second “magic square” with a different number from that in the above-named.

- X. Kept count of the strokes of a bell rung by a gentleman present.
- XI. Committed to memory two sentences of Spanish, given on the same system as No. VI, and correctly repeated the same.

The Acharya has, it seems, acquired the power of creating in his mind for each of the several things he does, a separate mnemonic point, or thought-centre, and around this forces the ideas relating to it to cluster and group themselves.

There are men who can do fifty things at once, and, while we lived at Bombay, an exhibition was made at the house of a Hindu gentleman of rank, by a pandit who was credited with the power to keep no less than one hundred things in mind simultaneously. But those who know assure me that only twenty-four actually different things can be thought of by a person, all beyond that being cheating—*i.e.*, the exhibitor merely repeating verses, etc., that he already knew, not composing new ones or taking in from dictation sentences or verses until then unfamiliar. . . . Read the sage counsel of old Thomas Fuller, himself renowned in his day for uncommon powers of memory: "Overburden not thy memory to make so faithful a servant a slave. Remember Atlas was weary. Have as much reason as a camel, to rise when thou hast thy full load. . . . Marshal thy notions into a handsome method. One will carry twice more weight trussed and packed up in bundles, than when it lies hanging about his shoulders."

I well remember one occasion some years ago on which an Indian gentleman who had been trained from youth displayed his capacious memory by doing twenty things at once, taking the words of sentences out of order in five languages, composing verses to complete given lines, calculating dates, etc., and repeating afterwards the whole mixture of things in order without the

slightest error. I was particularly struck with the ease with which he performed this astonishing feat, and as I had the pleasure of his society for several days, we had much opportunity for exchanging opinions on methods of training. It did not appear that he suffered from over-strain in any way, but this, I think, was due to the fact that his teacher had insisted most firmly upon calmness and peace of mind, so that his disciple should always be free from any anxiety or discontent, and should remain quite undisturbed by the accidents of life. His training also included the most scrupulous cleanliness and dispassion, and particular care in the avoidance of certain kinds of food, even for a Hindu, and when we consider how much more particular in matters of bathing and food are the habits of the average Indian than those of the average European, that is saying a good deal.

The reader who cares to do so will easily, with the aid of the methods prescribed in this book, be able to perform the feat of the *Ashtāvaḍhāni*, and without serious danger, if he is thoroughly particular about cleanliness of life and thought, and calmness of mind. Indeed, the experiment of thirty or sixty or more numbers, explained in the previous chapter, is more striking than any which are usually done, and not at all difficult, and, I believe, has never been published before. Care is certainly necessary and training should be gradual, and, given these conditions, there is nothing to fear.

We do not suggest that any one need try to perform these feats, yet the devices we have shown are useful

to all students. Once more, in the words of Colonel Olcott :

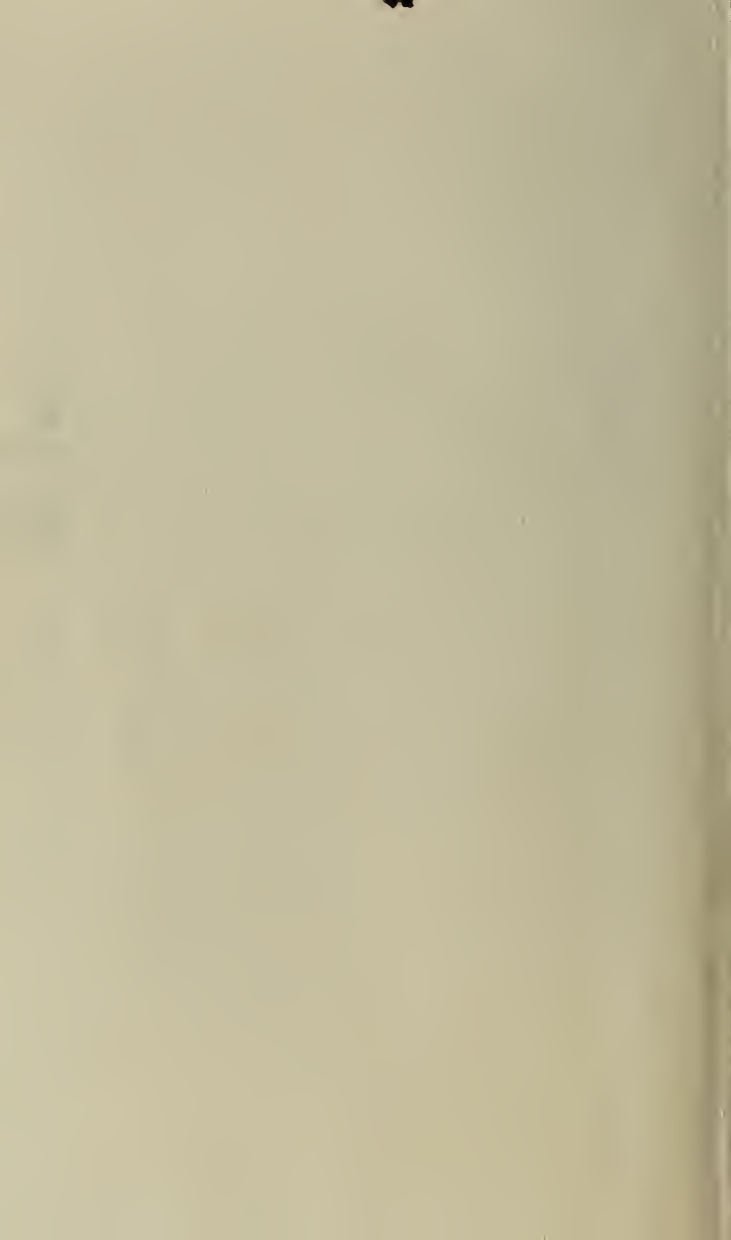
A simple system of helps to memory is of the highest value in every walk of life ; so high, in fact, that thousands of cases may be found in history where not merely fortune but even life has been at stake upon the recollection by eye-witnesses. To the student of esoteric, perhaps more than to the student of exoteric, science is a tenacious memory indispensable ; for what he must learn is not so much written in books as conveyed by the living voice, and if forgotten will not be repeated, but must be fished out of the waters of Lethe by oneself.

MEMORY

To him that would me gladly gaine,
These three precepts shall not be vaine.
The first is well to understand
The thing that he doth take in hand.
The second is the same to place
In order good and formed race.
The third is often to repeat
The thing that he would not forgeat.
Adioyning to this castell strong,
Great vertue comes er it be long.









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